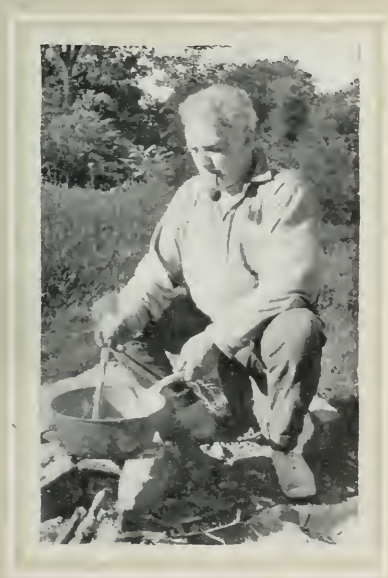


KODAKERY

A
MAGAZINE *for* AMATEUR
PHOTOGRAPHERS



NOVEMBER, 1916

CANADIAN KODAK CO., LIMITED
TORONTO, CANADA



Developing is done in daylight with a

KODAK FILM TANK

and the experience is in the tank.

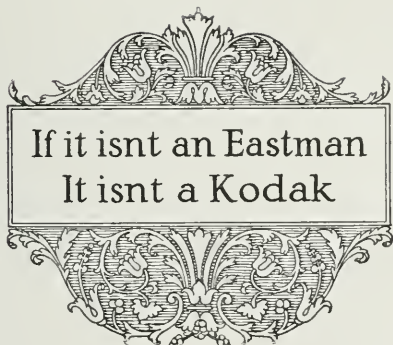
PRICES.

Brownie Kodak Film Tank, for use with No. 1 No. 2 and No 2 Folding Pocket Brownie cartridges, complete, ...	\$2.75
Vest Pocket Kodak Film Tank, for Vest Pocket cartridges, complete, ...	2.75
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TORONTO, CANADA

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If it isnt an Eastman
It isnt a Kodak



A Brittany Morning
Made with No. 3A Folding Pocket Kodak

KODAKERY

A Journal for Amateur Photographers

PUBLISHED MONTHLY—YEARLY SUBSCRIPTION, 50 CENTS; SINGLE COPIES, 5 CENTS.

VOL. IV.

NOVEMBER, 1916

No. 1



A Vehicle to Give Interest to the Street
Made with No. 1A Kodak

ALL AROUND TOWN

BY BAYARD BREESE SNOWDEN

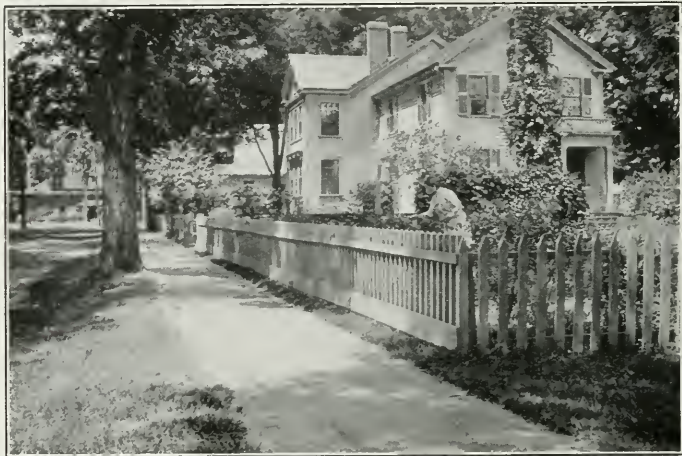
Illustrated by the Author

MEETING me on my return from a stroll about town not long ago, a friend observed the Kodak under my arm. "I've been through all that," he said. "Used to go around town with my Kodak a lot."

"But you don't any more?" I asked.

"No," he answered, with an air of finality. "Yon see, after a while one gets the whole place photographed."

His remark amused me. A per-



A Village Home
Made with No. 1A Kodak

son must have a funny idea of Kodaking to say such a thing as that. I have been photographing around town myself pretty steadily during the past five or six years, and Heaven knows that I haven't even begun to see a limit to the subjects. In fact, the more pictures I make around town, the more others suggest themselves. The place is full of pictures. To anyone who really knows the game, there is something gro-

tesque about the thought of cleaning up a town photographically in a few months of snapshotting.

Of course, if you begin by deciding that there are only six or eight objects in town worth pho-



The Dump-Cart

Made with No. 1A Kodak



The Village Blacksmith
Enlarged from No. 1A Kodak Negative

tographing, and that one view of one of those objects is as good as another, so long as it gets everything in, then it is possible to exhaust the picture material of the town in a very short time. But anyone who proceeds in that fashion is a long way behind the times, or else he has a lot to learn. Pictures are to be had everywhere, and not all of them on the main street, either. Also, two pictures of the same thing may be as different as night and day. The season, the hour, the light, the

point of view—any of these things may serve to change entirely the pictorial effect, or to make a beautiful picture out of the most unpromising material.

Look, for example at the street scene on page 4, showing a dump-cart taking its leisurely course past a row of very modest cottages. My friend, I fancy, would not have paused for a view like this. "Too ordinary to be worth an exposure," he would have said at once. And yet how often there is in the ordinary scene an appeal that is al-



The River Road

Made with No. 1A Kodak

most poetic. One of the greatest mistakes is to suppose that art is measured in terms of splendor or magnificence or size.

Look at the other street pictures, to get a suggestion of what you may do in your own town or village. See how by the inclusion of vehicles and other figures, and by the choice of a suitable time of day or year, an interesting composition is made of very simple material.

Then glance at the picture of the blacksmith, presiding over his anvil at the drop forge with unerring skill. Ask yourself if there are not many such subjects in your own neighborhood, waiting to be sought out by the Kodaker, as this was. And the picture of the quiet

lane by the river—that, too, carries its suggestion. You may throw up your hands and say, “There is nothing like that, or I should have seen it.” But no one else, apparently, saw this. All saw the river, over which the old shanty hangs; all saw the waterfall, and the little power plant on the other bank; but this view, the most obvious of all, was evidently not observed. In every town there are such things—old landmarks, picturesque buildings, beautiful effects of sunlight and shadow, little bits here and there that no one thinks of until some one points them out. Why not be the one to make a picture that will point them out?

When you have thought over these things, look at the town you live in with a new respect. Banish the thought that you must run off to Europe in search of the picturesque. It is here, all around you—all around town. He that hath eyes to see, let him see.



In the Sand

Made with No. 3A Folding Kodak



Fig. 1—Yellow Sunset; 5 P. M.; Stop 16; 1/100 sec.
Made with No. 3A Folding Pocket Kodak, by Edgar L. Shuford



Fig. 5—Made with Stop 4 ($f.8$); $\frac{1}{25}$ sec.

NIGHT EFFECTS FROM DAYLIGHT EXPOSURES

THE photographs that most effectively suggest night scenes are usually made from negatives that were exposed, not at night, but during the daytime, at an hour when the strongest light that comes from the sky is much nearer the horizon than the zenith, and this strong light is in front of the camera or, in other words, behind the subject photographed.

This means that the lens must be pointed directly toward the light, so not the strongest lighted side but the shadow side of the subject will face the lens.

In making exposures against the light the lens must not be pointed toward the sun, unless the sun is behind clouds and very near the horizon. If this precau-

tion is not observed the picture will be fogged.

The most pleasing night effects can usually be obtained in the late afternoon on days when the sunlight, coming through the clouds, is yellowish. This yellow light acts as a filter which aids in recording the clouds and makes it unnecessary to use a color filter in front of the lens.

Pictures intended to represent night scenes must be dark; both the foreground and the sky must show more dark than light tones. A dark foreground with a white sky may resemble a silhouette, but it will not suggest a typical night scene.

When making typical night pictures by daylight we reverse the rule for daylight exposures; that



Fig. 3—Storm Clouds. 6.30 P. M. in August; Stop 4 (*f.8*); $\frac{1}{25}$ sec.
Made with a Kodak by W. R. George

is, we expose for the highlights and let the shadows take care of themselves. This is done that the picture may show the lights in the sky but not the detail in the prominent objects on the landscape.

To make this subject as clear as possible we will analyze our illustrations:

Fig. 1 suggests moonlight on the water. The late afternoon sun, which is shown in the picture, was partly obscured by clouds and its light was decidedly yellow.

Fig. 2 represents a scene that can be observed at sunset wherever large and impressive shapes are outlined against the western sky. Whether the foreground con-

sists of land or water the silhouette effect will be the same. The exposure for such a subject should be about $\frac{1}{25}$ of a second with stop 4 (*f.8*) within a quarter of an hour before or after sunset.

While the outline of the sun is not visible in Fig. 3 its position is clearly indicated. Such a picture can be planned wherever pleasing landscape outlines are seen across any broad stream or other waterway, with the sun behind them, at either sunrise or sunset. To complete the picture story a boat may be placed in position when the light conditions are favorable.

Fig. 4 represents a type of picture that can be made where there



Fig. 2—A Striking Combination: Water and Sky in
Detail, with Land and House in Silhouette



Fig. 4—A Pastoral



Fig. 6—1 P.M.; Stop 16; $\frac{1}{25}$ sec.
Made with a Kodak, by Glen C. Smith

are hills or a group of trees. While we have no data regarding this, it is evident that the exposure was made while the sun was high above the horizon. A very striking picture of such a subject may be obtained with the camera facing the setting sun, when the sun is near or partly below the horizon and its rays no longer reach the ground but still rest on the backs of the sheep. The exposure for such a sunset scene would probably be $\frac{1}{10}$ of a second with stop 4 (*f.8*).

In Fig. 5 the sun is shown near the horizon. Since even the horse's hoofs are silhouetted against the sky it is evident that

horse and rider were on the summit of a hill. There are many places along the roads in hilly sections where similar pictures of pedestrians, horses, cattle, horse-drawn vehicles, etc., can be obtained at the sunset hour.

Fig. 6, made at 1 P. M., tells us we can make outdoor silhouettes at any hour when the sky is dark overhead, with a strong light at the horizon, toward which the camera faces.

All of the pictures we have described can be made with any kind of camera that will permit giving the exposures stated with the stops mentioned. They can be made with cameras that have neither these shutter speeds nor stop markings by placing the camera on a tripod or other rigid support and giving a time exposure by opening and closing the shutter as rapidly as possible, when the smallest stop is used.



The Cowboy's Supper

Made with a No. 4A Folding Kodak



Jingling Cloud

Made with a Cycle Graphic, by David M. Krick

THE BROWNIE ENLARGER

BY DAVID M. KRICK

JINGLING CLOUD never forgave us for the way we took that picture. He is intelligent and intelligent-looking, a graduate of

Haskill Institute, and now taking a post-graduate course in a New York college. But one day when he put on his war togs, we posed

him in the open, making him look squarely into the hazy sun so there would be just squint enough to take the intelligence out of his face and give us the expression we wanted. The camera we used was a Folmer & Schwing R. B. Cycle Graphic with extension bellows. We set the diaphragm of the lens at U. S. 32 and gave a $\frac{1}{2}$ second exposure. We developed the negative with pyro, as per formula. It was fully developed and proved just the thing for making an enlargement.

I might say that when we were packing our trunk for camp we had a few inches of space left; some one had told us of the Brownie enlarger and we decided to take one along, so into the few inches of space it went. At the camp we worried over it a while, trying one thing and then another. I told the boys that no photo supply manufacturer could turn out goods that were entirely fool-proof, but a guarantee by a good firm could be depended on and if the enlarger did not work it was up to us. Soon we learned how to use it and, of course, when the Indian negative was dry, we must try that—it looked so very good. We cut a cardboard mask, fastened the negative to it with adhesive tape, put it in the En-

larger, and an 8 x 10 sheet of double weight developing paper in the other end, then we set it out to the clear north light for a six-minute exposure. We developed the enlargement in M. Q. and found it just right, fixed it in acid fixer and laid it in the brook to wash. Was it good? Well, we could never get the beauty, softness and detail out of the negative by contact printing the way that little enlarging camera did.

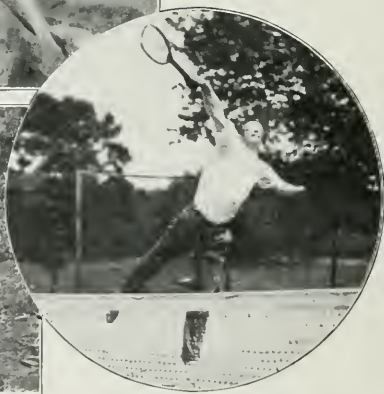
Jingling Cloud had to admit it was a beautiful picture, but did not know he looked so much like an Indian after having fallen into the ways of the paleface.



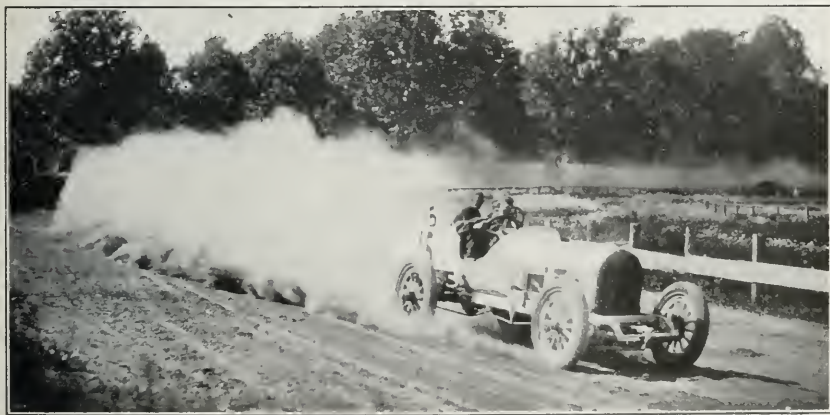
Sunshine
Made with Vest Pocket Kodak

S P

AS SEEN
BY THE
KODAK
AND
GRAFLEX



O R T





Pasture Portraits

OUTDOOR SILHOUETTES

THERE is an interval of time, both before sunrise and after sunset, during which the contrast between the light in the sky and the light on the landscape is much greater than at any other time of day—due to the fact that during this interval the sun's rays do not reach the landscape, though they do reach and brilliantly illuminate a considerable part of the sky.

All of us have observed the changing colors of the sky after sunset as the sun's rays are first partly then wholly withdrawn, and many of us have also observed the sky changing from dull to bright and ever brighter colors during the period just preceding sunrise.

Now it is during these periods—very shortly before sunrise and very shortly after sunset, when the sky is free from clouds—that outdoor silhouettes can most easily be made with the camera, and the method is as simple as it is certain.

Any object, not too light in color, that is clearly outlined against the most brightly lighted part of the sky can be photographed in silhouette. When the



On the Railway

sun is just below the horizon an exposure of $\frac{1}{25}$ of a second, with stop 8 (*f.11*), will usually give the desired result. With single-lens cameras, that have no No. 8 stop, and with cameras of the box type that have neither stop nor shutter speed markings, the largest stop should be used and a snapshot made.

No rule can be given for exposures when the sun is several minutes (in time) below the horizon, since the strength of the

light is then changing rapidly and is as different for different latitudes and for different seasons of the year as is the duration of dawn and twilight.

Silhouette negatives must be contrasty, that is, the highlights must be dense and the shadows almost transparent. They should be developed 20 minutes in the tank, with two tank powders, when the temperature of the developer is 65 degrees. The prints should be made on a "contrasty" paper, like Contrast Velox. Should undesired detail show in the silhouette it can be etched from the negative by gently seraping it off the emulsion side with a sharp penknife.

Our illustrations are straight prints from straight negatives that were neither etched nor manipulated in any way. They were made exactly according to the instructions we have given.

Every prominent object on the landscape that stands clearly outlined against the sky is a subject for a silhouette. Every movable object, including of course, horses, cattle and other animals, as well as all types of humanity, can be photographed in silhouette. When making silhouette portraits a full profile, that is, a straight side view of the face, usually gives the most characteristic likeness.



The Semaphore

ANASTIGMATS AND ACHROMATS

BY DR. C. E. K. MEES

WHEN you want to buy a Kodak and you look at the list, you will find some of the cameras listed with several different kinds of lenses; some are said to have "Meniscus Achromatics," which cost the least; others have "Rapid Rectilinears" (R. R.), which cost more; while still others have "Anastigmats," and these cost the most. Probably most people choose by paying as much as they can afford and getting what they can for the money, and it can be generally assumed that they get what they pay for and that the expensive lenses are worth what they cost.

A lens made out of a single piece of glass can be used in a camera in which the position of the lens is fixed by the maker so that the photographically-active blue rays are focused sharply on the film; and the lenses fitted to the lowest-priced, fixed-focus cameras are of this type. But if you take such a lens and use it in a focusing camera you will find that however carefully you focus the picture the negatives will not be sharp. This is because the lens bends the different colored rays of which white light is composed to different extents; so that,

the yellow rays which you use for focusing do not come to a focus in the same place as the blue rays which most strongly affect the film, since the blue rays are bent more than the yellow ones.

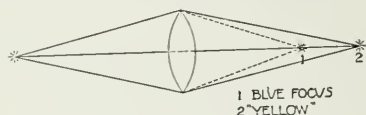


Fig. 1

In 1752, Dollond showed that by combining two different kinds of glass to make a lens he could get the blue rays to focus at the same point as the yellow rays, and lenses made in this way were called achromatics, from the Greek words "a," meaning *not*, and "chroma," meaning *color*. The best shape of achromatic lens to use is shown below, and since this is of a "meniscus" or crescent shape the lenses are called meniscus achromatics.

If a single achromatic lens is used, it is necessary to "stop it down" so that only a small portion of the lens is used, because the rays which come through the edges do not

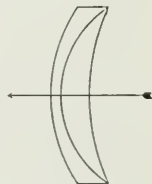


Fig. 2

focus together as well as those which come through the center, and so the image is not quite sharp if the whole lens area is used.

This stopped-down meniscus lens has the effect of producing slight curvature of the edges of the picture, which does not matter in landscape work or portraiture; but if subjects containing straight marginal lines are photographed with such a lens their outer lines appear slightly curved—so slightly, however, that the effect is negligible unless the image of the subject so crowds the picture area that its outer lines are very near the margins of the picture, as shown by figures 3 and 4, which represent a window sash photographed with a meniscus lens at short range.

If the stop is in front of the lens the curvature is in one direction, and if it is behind the lens the curvature is in the opposite direction, so that if we put two achromatics together with the stop between them the curvature is neutralized and we get a lens which gives no curvature at all.

Such a lens is called a "Rapid Rectilinear"—rectilinear because it gives straight-line images and rapid because, having a focal length half that of either of the component achromatics with a

stop of the same diameter, it passes four times as much light and only requires one quarter of the exposure. Rapid Rectilinears are sometimes called by other



Fig. 3

Made with Stop Behind Meniscus Lens

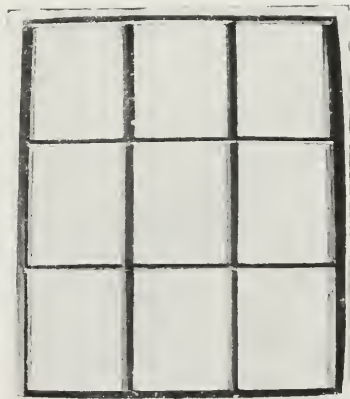


Fig. 4

Made with Stop in Front of Meniscus Lens

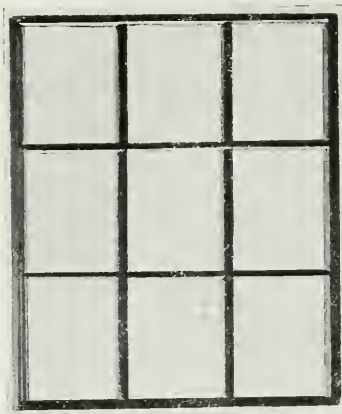


Fig. 5

Made with Rectilinear Lens

names, such as "Rapid Aplanats," "Planatographs," and so on.

Now it so happens that the two kinds of glass used in an achromat must fulfil certain conditions to bring the blue and the yellow rays to the same focus and must fulfil certain other conditions to get a picture which is flat, that is, a picture that is sharp on a flat plate or film; and the ordinary glasses which are used for making achromats will not fulfil all these conditions at once, so that the lenses made with these "old" achromatics will not give flat field

images, the image being saucer-shaped. These lenses are, therefore, said to be "astigmatic," which means that they do not give sharp-point images of points.

About 30 years ago Professor Abbe and Mr. Otto Schott, working together at Jena, in Germany, found out how to make new kinds of optical glass from which lenses could be made which would give flat field images with the blue and yellow rays at the same focus.

By the use of these new glasses the opticians have been able to make lenses that give sharp images on a flat field to the very edge of the picture and, therefore, these lenses are called "Anastigmats," meaning not "astigmatic," but this better defining power can, however, only be obtained by the most careful and skilled work in making the lens, this work being of a far higher quality than that employed on the older types of lenses, which accounts for the higher cost of anastigmats.

Anastigmat lenses can be used with larger stops than any of the older lenses, so that if an Achromatic working at $f.16$ requires $\frac{1}{2}$ second exposure, a Rapid Rectilinear working at $f.8$ will require $\frac{1}{20}$ second exposure, and an Anastigmat working at $f.6.3$ will require $\frac{1}{32}$ second exposure.

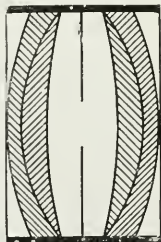


Fig. 6

Design of Rectilinear Lens



Giving Ear to the Kodak

The African on the left has inserted into the distended lobe of his ear a discarded Kodak film box. The man on the right wears a heavy piece of wood

EASTMAN FILM IN TROPICAL AFRICA

BY STEWART EDWARD WHITE

DURING an exploration trip lasting all told some twenty-two months in Central Africa, I carried with me two cameras; a 3A Kodak and a Graflex taking the same size film, and having anastigmat lens equipments with suitable color screens. Films were all packed in sealed tin boxes with the addition of a calcium chloride tablet to absorb moisture. With this outfit I was perfectly satisfied, and got all the different kinds of photographs I wanted.

Besides the legitimate uses of these instruments, I used the Graflex constantly to help my

diplomatic negotiations with new tribes. A great many of these people had never seen a white man. With them it was necessary to open friendly relations. The diplomatic proceedings would in each case occupy several days, and besides endless talk would also include various sorts of white man's magic, such as disappearing coin tricks, and other feats of legerdemain, turning water into blood by means of permanganate of potash crystals, cutting out paper dolls, etc., etc. All of it apparently childish and silly, but in reality extremely valuable in

impressing the natives with the fact that the white man is a great and glorious creature.

A view into the focusing hood of the Graflex always proved more wonderful than almost anything else. The native African is not trained to see things pictorially. He has no picture writing as various other savage tribes in other parts of the world have, and he is often unable to make out even a portrait of himself because of the reduced size and his lack of a trained eye. The pictures on the Graflex ground glass, however, showing properly colored moving figures in miniature were perfectly recognizable, and also, perfectly marvelous. Whenever the other entertainment began to drag we could always trot out the Graflex and get a "hand."

The photograph accompanying this article was taken about a

hundred miles from Lake Victoria Nyanza. I had refilled the camera and thrown away the bright yellow pasteboard box in which the tin box containing the film had been packed. Its color and shape aroused the interest of the man in the picture. He picked it up and put it in the lobe of his ear, discarding to make room for it an ornament of ivory. The lobes of the natives' ears in this part of the country are stretched to incredible dimensions. The stretching process is begun in early childhood and carried on until it is nothing unusual for the lobe of the ear to be stretched sufficiently to admit of a jam pot or even a vegetable can being inserted.



Write the date on the film—at the time.



On an English Beach

Made with No. 3A Folding Kodak

TO OUR READERS

YOU read KODAKERY because you are interested in making pictures. We publish KODAKERY because we wish to assist you in making good and then still better pictures.

If you are a beginner in photography KODAKERY will start you right—will tell you how to obtain specific results without experimenting, thus saving you both time and money.

If you are an advanced worker KODAKERY will add to your knowledge of photography, thus assisting you in advancing still farther.

Many months ago we began inviting our readers to submit their photographic problems to us for solution. We requested them to send us negatives and prints for criticism and offered to furnish, by correspondence, information regarding all amateur photographic processes—*these services being rendered free of charge.*

KODAKERY correspondence has steadily grown until it has become an important educational factor. Many of our readers have informed us that our answers to their questions, our criticisms and our suggestions have proven of great help to them.

We have available, and place at your disposal, the knowledge many specialists have acquired from laboratory research. We are also in possession of the knowledge gained by a host of practical workers whose labors have been confined exclusively to photography for many years.

If you wish to profit from this knowledge correspond with us freely. We will take pleasure in answering your letters.

When sending prints for criticism, be sure also to send the negatives from which the prints were made. We wish to tell you whether the negatives were rightly or wrongly exposed, rightly or wrongly developed, and whether the prints were rightly or wrongly made. Give complete data, when possible, regarding each negative and print. We wish to know the month, the time of day, the condition of light when the exposure was made, the stop and shutter speed used, whether the negative was developed in the tank or in the tray and the kind of developer used. We also wish to know the name and grade of paper on which the print was made. Both negatives and prints will, of course, be promptly returned.

ADDRESS ALL COMMUNICATIONS,
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TORONTO, CANADA.



Greeting Cards

A problem that takes a good deal of thought to solve is that of remembrances to one's friends at the Holiday Season. Gifts are inappropriate in so many instances, quite apart from the expense that an infinite number of small yet suitable gifts would involve. Could anything be more in place in such circumstances than a neat card carrying a snapshot of some person or scene of interest to the sender and his friend?

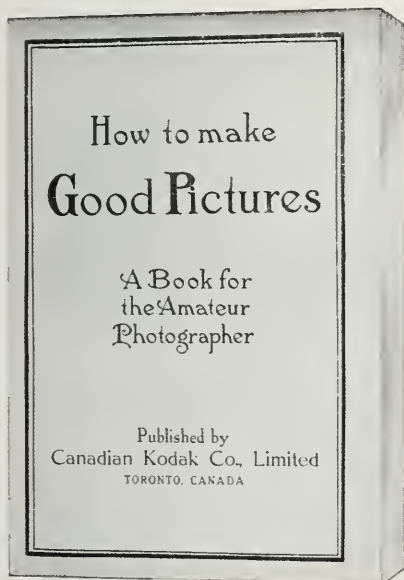
The illustration does not do justice to the cards your dealer can supply for the coming Holi-

days. They are made on the slip-in or insert style, the whole giving a folder effect. The cover is of cream antique stock, carrying an embossed floral design in colors; around the edge of the cover board runs a neat border of red, which throws the design into prominence. The insert under which the print is slipped, is made of white stock, the aperture for the print being surrounded by a sunken margin, broken by a narrow line of red. Attention is called to the depressed name space, which is so placed as to go well with either vertical or horizontal pictures.

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TORONTO, CANADA



If you don't know how to make good pictures, this book will help you.

If you do, it will aid you in making good pictures better.

"How to Make Good Pictures" is authoritative and written, as it is, in a practical, simple, straightforward manner, the valuable information it contains may be easily assimilated. Profusely illustrated.

THE PRICE

"How to Make Good Pictures," paper covers.	\$.25
Library edition, cloth bound, ...	1.00

CANADIAN KODAK CO., LIMITED
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The Kodak Portrait Attachment

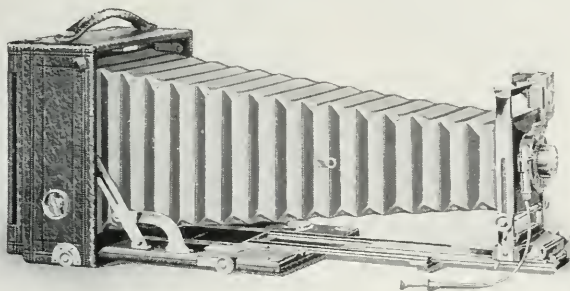
You can work within arm's length of your subject with this handy little attachment slipped on over the regular lens equipment and it is obvious that at such close range the image will assume goodly proportions—almost an enlargement direct.

*And the Kodak Portrait Attachment
costs but fifty cents.*

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For out-of-the-ordinary work



Premo No. 10

Copying, enlarging, telephoto work, portraiture without the need of portrait attachments, architectural and wide angle lens photography are provided for in the long bellows draw, drop bed and swing back construction.

The ground glass offers the advantage of that sharp focusing and accurate composition which such work requires. The camera takes films or plates with equal facility, and while designed to cover the most special requirements in amateur photography, is yet so convenient, so simple and so comparatively light and compact that it is easily used as a "snap shot" camera for ordinary amateur photography.

Makes 5 x 7 pictures. Regularly furnished with Kodak Automatic shutter, Rapid Rectilinear lens, carrying case and one plate holder, for \$60.00. Is also listed with various anastigmat lens equipments.

Described in the Premo catalogue, a copy of which can be had for the asking from your dealer or from us direct.

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Simplicity and efficiency, in smallest compass, are realized to the full in the

Premoette

Juniors

Nos. 1 and 1A

They measure but an inch and a half longer, three quarters wider, than the pictures they take and are one and three quarters thin—the very model of compactness.

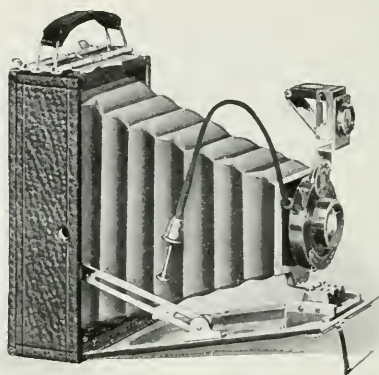


*Illustration shows Camera with K.A. f.7.7 lens.
With Single or Planatograph Lens,
Shutter has trigger release.*

SPECIFICATIONS.

No. 1. Capacity: 12 film pack exposures without reloading. Weight: 12 ozs. Lens: Meniscus Achromatic. Shutter: Kodak Ball Bearing. Finder: collapsible, reversible, brilliant. Tripod Sockets, two.

No. 1A. Capacity: 12 film pack exposures without reloading. Weight: 18 ozs. Lens: Meniscus Achromatic. Shutter: Kodak Ball Bearing. Finder: reversible, collapsible, brilliant. Tripod Sockets, two.

PRICES

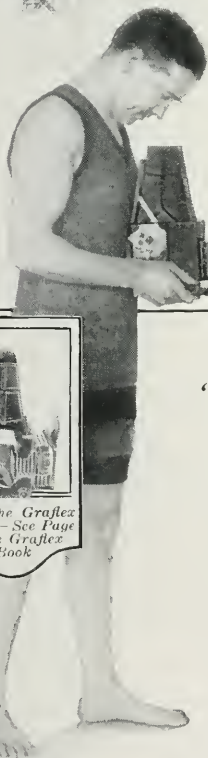
	No. 1 2¼x3¼	No. 1A 2½x4¼
Premoette Jr. with Meniscus Achromatic Lens	\$ 5.00	\$7.00
Ditto, with Planatograph Lens	7.00	9.00
Ditto, with Kodak Anastigmat Lens, f.7.7	12.00	14.00

CANADIAN KODAK CO., LIMITED
TORONTO, CANADA

At your dealer's.

GRAFLEX Camera

—shows you the picture
IN FOCUS as you take it



“Wait ’til the sun comes out again”

No! Not with a Graflex—don't need to. Sun or shadow makes little difference with a Graflex. It makes the most of the light and subject. It gets the pictures sharp in every detail because it gives exact focus and FULLY-timed exposures.

Write for the Graflex Book.

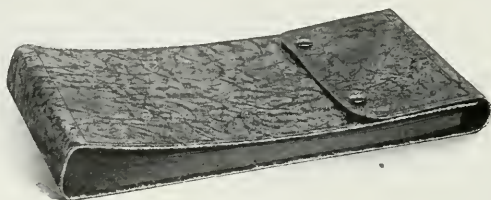
If photography is more than a plaything for you, the Graflex Book will surely interest you with its story of this camera that has freed the photographer from dependence on the sun's presence—and helped him take pictures under conditions impossible with cameras of the usual type.

Write for the Graflex Book now.

CANADIAN KODAK CO., LIMITED
[TORONTO, CAN.]



*How the Graflex
works—See Page
4, the Graflex
Book*



HERCULES ALBUM

Two features of the album recommend it at once—the large pocket for prints ready for mounting and the flap with clasps which holds the covers flat. *The Hercules can never bulge.*

Attractive in appearance with flexible, genuine leather covers of blended gray and black. Furnished with fifty black leaves bound inside of cover with silk cord.

THE PRICE

A, 5 x 8	\$3.25	B, 7 x 11, \$4.00	C, 10 x 12, \$5.40	D, 9 x 14, \$6.25
Pkg. 12 extra leaves	.18	.25	.50	.60



A novel effect and you'll like it.

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a new mount medium

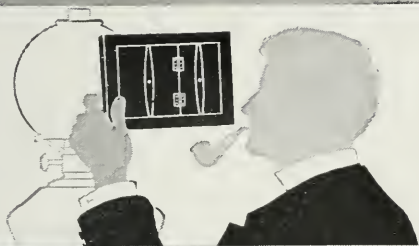
gives the effect of a finished picture—frame and all. It will help to make a “photographic masterpiece” look the part.

Priced from six to nine cents according to size.

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Prints by Gaslight

KODAK
EASTMAN FILM
VELOX

The dependable trio of amateur photography.

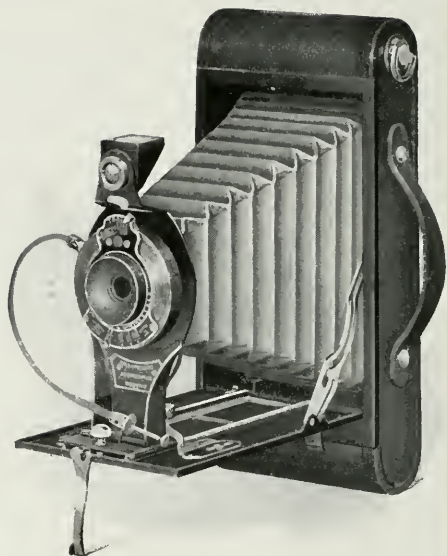
Velox is a photographic paper made especially for the amateur—it best fits any amateur negative.

CANADIAN KODAK CO., LIMITED
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The No. 3^A Folding Autographic Brownie

(making pictures $3\frac{1}{4} \times 5\frac{1}{2}$ —
post card size)



A Brownie that is new in a double sense—not only is it the latest model from the Kodak factories, but many of its features are absolute innovations as far as the old type Brownie is concerned. The autographic back, the striking compactness and slimness of construction, the rounded camera corners, the improved loading feature—it's a new and better Brownie through and through.

See it at your dealer's. That's the best way.

PRICE.

No. 3A Folding Autographic Brownie, meniscus achromatic lens and Brownie Ball Bearing shutter, - - - - -	\$10.00
Ditto, with Rapid Rectilinear lens, - - - - -	12.00

CANADIAN KODAK CO., LIMITED
TORONTO, CANADA

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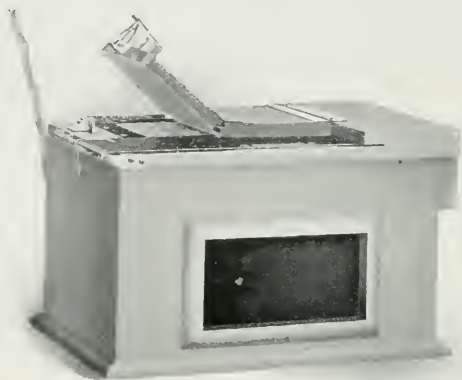
KODAKERY

A
MAGAZINE *for* AMATEUR
PHOTOGRAPHERS



DECEMBER, 1916

CANADIAN KODAK CO., LIMITED
TORONTO, CANADA



THE KODAK AMATEUR PRINTER

A printing frame, a printing light, a dark room light and an automatic masking device all rolled into one compact little box—that's the Kodak Amateur Printer.

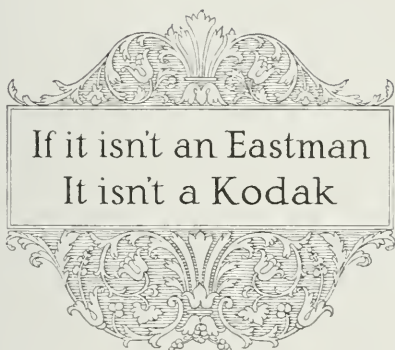
THE PRICE. •

Kodak Amateur Printer, - - - - \$6.00

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TORONTO, CANADA

At your dealer's.



If it isn't an Eastman
It isn't a Kodak



A Cheerful Pyramid
Made with No. 3A Folding Pocket Kodak



PUBLISHED MONTHLY—YEARLY SUBSCRIPTION 50 CENTS; SINGLE COPIES 5 CENTS.

VOL. IV

DECEMBER, 1916

No. 2



Made by John Habersroh with No. 3A Folding Pocket Kodak and Kodak Sky Filter
Bright Sun; Noon, September 28; Stop, 16: 1-25 second

THE CLOUDS ABOVE THE LANDSCAPE

WHEN white clouds are floating in a blue sky and we wish to make a picture that will show both the clouds and the detail in objects that are on the landscape within a few hundred feet of the camera, we must use a color filter for changing the color

of the light that reaches the film. This makes it necessary to increase exposure.

The Kodak Color Filter changes the color of all the light that passes through it. When used with Eastman roll film or Premo Film Pack Film the exposure should be



Made by John Haberstroh with No 3A Folding Pocket Kodak and Kodak Sky Filter
Hazy Sun; 3.30 P.M., October 8; Stop, *f.11*: 1-25 second

about ten times as long as it would be were no filter used. For instance, should the correct exposure, with stop 16, be $\frac{1}{25}$ of a second without a filter, it would be about $\frac{1}{2}$ a second, with the same stop, when the Kodak Color Filter is used. A $\frac{1}{2}$ second exposure requires a tripod, or some other rigid support for the camera.

The Kodak Sky Filter only changes the color of the light that passes through its upper half, the lower half of the filter being colorless. This permits obtaining a fully timed negative with only twice as long an exposure as would be needed if the sky filter was not used.

There are two ways of doubl-

ing the exposure: by halving the shutter speed without changing the stop, as, for instance, giving an exposure of $\frac{1}{10}$ second instead of $\frac{1}{25}$ second with the same stop, or, by doubling the area of the stop without changing the shutter speed, as, for instance, using stop 8 (*f.11*) instead of stop 16, with the same shutter speed.

This latter method permits a snapshot to be made, when the sun is shining, with the camera held in the hands.

Our illustrations are from negatives that were made by using a Kodak Sky Filter, with a 3A Kodak. The appended data explain how the results were obtained.

In examining these pictures

note especially the light on the sheep shown in the picture on page 3. This tells us that the sun was at nearly right angles to the camera, giving a cross lighting. Now it was this cross lighting that cast the shadows in the depressions on the mountain and made prominent the inequalities in the clouds. Had the sun been behind the camera the picture would have lacked these shadows, and without them both clouds and landscape would have appeared flat.

Remember you can neither obtain striking pictures of clouds when the sun is behind the camera,

nor when white clouds are faintly outlined against a bluish-white or gray sky. *White* clouds in a *blue* sky, with the sunlight easting shadows to the right or left of the camera, constitute the ideal conditions for recording clouds in your negatives. It is under these conditions that a filter will best demonstrate its value.

Watch for clouds when the air turns cold after a summer or autumn storm. Then the atmosphere is usually clear, the sky a deep blue and the clouds often break up and float away in groups.



Quay des Franes, Bruges, Belgium

Made with a Graflex

PICTURES THAT FAILED. AND WHY

BY DORA STUART

Illustrated by the Author

UNSUCCESSFUL competitors for the annual Eastman cash prizes are probably asking, "Why were my photographs returned?" each one feeling sure that his own are just as good as the prize-winners.

But *are* they? It is not difficult to make an assertion, but it is quite difficult and often impossible to make a critical analysis of

one's own work, particularly during the enthusiasm of production. But later, when the photographs are at last resurrected from the limbo of disappointed hopes to which they were consigned—often without removing the wrappings in which they were returned from the heartless judges—an impartial and even a merciless criticism becomes possible.

For example, lapse of time has reduced Fig. 1 from a National appeal to "Take a Kodak with You" to its proper proportions—merely a memento of a pleasant day with friends. True, Kodaks are in evidence, but primarily, this picture is one that possesses significance only for those personally concerned.

The slogan, "All Out-doors Invites your Kodak," which Fig. 2 was intended to illustrate, is like the title of many books, more attractive than the subject it is sup-



Fig. 1



Fig. 2

posed to illuminate or suggest. Considered as a picture of a rock 'gainst a vast gray waste, with a figure in the foreground ostensibly recording the loneliness of it all, it is a huge success; but as an "invitation" to Kodak the Outdoors, it is a libel on the "great, wide, beautiful, wonderful world."

Like Fig. 1, Fig. 3 has no special value beyond its personal appeal as a souvenir that records the joy of two children in the recent acquisition of a not-too-well-fed pony. To be sure, the general interest of the picture will increase as the final extinction of the genus

equus draws nearer; but at the present time, older citizens still remember when traffic was not conducted by the horseless vehicle.

So far, nothing has been said regarding the merits of the photographs from the viewpoint of a photographer. Indeed, they now appear to my time-clarified vision as being so hopeless otherwise, that further comment would be superfluous. But Fig. 4, in my opinion, is not of that type. In that photograph the more important defects might have been partially eliminated, at least, by selecting a more suitable hour for

making the exposure. The building seen through the arch is the famous Stanford Chapel. The sun being behind the chapel, the inlaid figures over the doorway are thrown into shadow. Also, the child's figure has the appearance of a silhouette against a sun patch on the pavement. Had the lighting been reversed, the picture, as a photograph, would have been much improved, though it is doubtful if another and more important difficulty—that of divided interest due to poor composition—could have been overcome by merely changing the lighting. In-

stead of illustrating the slogan, "Write it on the Film—At the Time," this picture places emphasis on some details of a beautiful building. The figure and the Kodak do not instantly command attention. They are discovered later. In fact, one unconsciously wonders, even before the discovery, what they are doing there, anyway. This picture tries to tell two stories. This is a mistake, because, to be of advertising value, a picture must forcibly convey but one definite idea, and that idea must be the one the advertiser wishes to impart.



Fig. 3



Fig. 4

NEVER OIL THE SHUTTER

THE shutter on your camera should *never* be oiled. It is designed to work without lubrication. Oil will *always* put it out of

order. The only care a photographic shutter needs is protection against dust, moisture and violent injury.



Fig. 1

Stop, 8 (*f.11*); 1-25 second; 3 P.M.

MAKING PICTURES IN RAVINES

THE surest way of obtaining sharp and fully-timed negatives in deep ravines is by using a small stop and giving a time exposure. A snapshot, even with the largest stop, will rarely give

results, because there is never as much light in a gorge as there is on the level above it.

Ravines are often very narrow, and there are usually prominent objects, such as boulders or ledges of rock, so near the camera that the focus must be set for less than 100 feet, and a stop too small for snapshot work must be used if both near-by and distant objects are to be sharply rendered in the picture.

A rocky ravine has a rugged aspect and a picture of such a subject should show its rugged nature. In most cases this can best be shown when the view is *up* the glen.

The most pleasing light effects are usually obtained when the gorge is partly in sunlight and partly in shadow. Should the light in the gorge be *extremely* contrasty, however, the best pictures can be made on cloudy days.

The problem that confronts the photographer is to record the contrast that exists between the light and dark parts of the subject, without having the light parts rendered as blank masses of white and the dark parts as blank masses



Fig. 2

Stop. 32 (*f.22*); 6 seconds; 9 A.M.

of black. This can only be done by giving an ample exposure, and an ample exposure in a ravine is, in nearly all cases, a time exposure.

Our illustrations are from photographs made with a No. 3 Folding Pocket Kodak, in Watkins Glen.

Fig. 1 shows the result of a snapshot exposure.

Fig. 2 represents the same subject photographed at another hour, from nearly the same point of view as Fig. 1. This shows the



Fig. 3

Stop, 32 (*f.22*): 30 seconds;
9 A.M.

result of a time exposure.

Fig. 3 is a splendid rendering of an especially difficult subject. The only point from which this picture could be made was so close to the rocks in the foreground that even so small a stop as U. S. 32 (*f.22*) could not bring both the nearest and farthest objects into sharp

focus, while the light was so weak that an exposure of 30 seconds was needed.

The lighting of the subject shown in Fig. 4 was very contrasty. A snapshot exposure with a small stop would have given a hopelessly under-exposed negative, while had a large stop been used much of the picture would have been out of focus.

Had Fig. 5 represented water tumbling over rocks, on a hillside that received the light from right and left

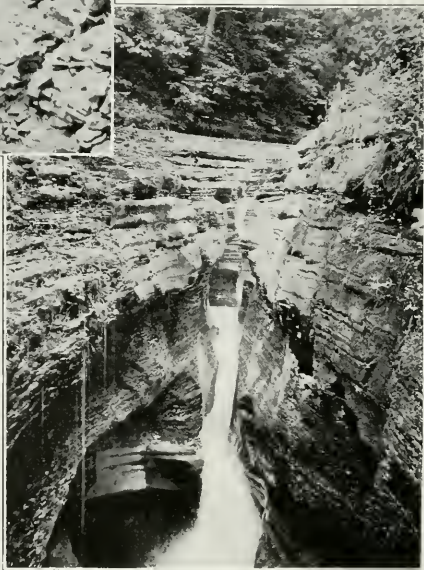


Fig. 4

Stop, 32 (*f.22*): 8 seconds; 10 A.M.

and front and top, an exposure of $\frac{1}{25}$ second with stop 8 (*f.11*) would have been ample, in sunshine, but in the ravine, where the light came almost solely from above, a 35-second exposure was required.

The camera was in a tunnel when Fig. 6 was made. All the detail in this picture, together with detail in the rocks within the tunnel, could have been recorded had one No. 3 flash sheet been ignited above or to one side of camera immediate-



Fig. 6

Stop, 32 (*f.22*): 8 seconds: 9.30 A.M.



Fig. 5

Stop, 16: 35 seconds: 6.30 P.M.

ly after exposing by daylight.

While no rule that will apply to all cases can be given for making photographs in such dimly lighted places as deep ravines, it is evident that snapshots should not be undertaken. The surest way of obtaining good results is to make three negatives of each subject, giving the first the exposure you think is correct, the second negative one-third the exposure of the first and the third three times the exposure of the first. For instance, try 12, 4 and 36 seconds with stop 32 (*f.22*). When using a single lens camera with stops marked 1, 2 and 3, use stop No. 2 and give the exposures stated, with the camera on a tripod.



"Kodak the Children"—The Winning Picture

WHY THIS PICTURE WON A PRIZE

THE illustration on this page represents one of the photographs that was entered in the 1915 Kodak Advertising Contest, for illustrating the slogan, **KODAK THE CHILDREN**. This picture proved a prize-winner. Do you wonder why?

Let us briefly analyze it: It contains human interest and suggests action—and the action it suggests is that which the slogan implies.

Note the simplicity of the composition. The eye goes directly to

the objects of interest. There is nothing within the picture to divert the attention from the figures. There is no divided interest. You are compelled to look at the group, which, by the way, is a story-telling group, and the story this group tells is well and briefly told. It is the story of the slogan. That is why it won a prize.



When in doubt take your Kodak with you.

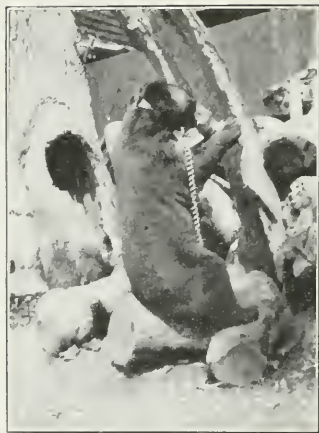


Norwegian Boats

Made with No. 3A Folding Pocket Kodak

ANIMAL FRIENDS AI

INTRODUCED BY THE KODAK



ACQUAINTANCES





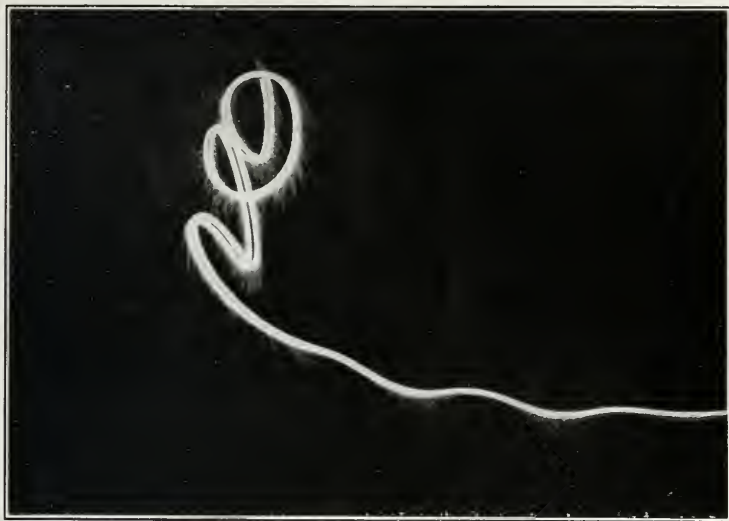
From an Old Engraving — The Camera Obscura

LIGHT PICTURES BEFORE PHOTOGRAPHY

THE sun made pictures before there were any lenses—it photographed itself in true circles on the ground through between-leaves, and men long ago discovered that a pin-hole, admitting light into a darkened chamber, could make a sun picture (inverted) of a landscape.

Lenses, too, made pictures before there was any photography, images on mirrors or oiled paper; and when a box was constructed to shield and emphasize such an

image it was called a camera obscura. These were "all the fashion" early in the last century. Sometimes summerhouses were built with a lens set above the roof so that a mirror might deflect the image of the surrounding garden or landscape to the surface of a table within. The contrivance shown in the picture above was called a camera obscura. Often a device of this kind was used in making traced drawings, which were greatly prized.



Path of an Illuminated Aeroplane
Made with a Graflex

ALL KODAK FILM NOW SPEED FILM

WHEN we began the manufacture of "speed" film it was decidedly faster than our regular N. C. film. There were, however, some conditions, such as uniformity and keeping quality, which were more difficult to control in the "speed" than in the old reliable "N.C." emulsion. In order to protect our customers, we did not give the speed film as long a dating as was given the N. C. We were inclined to make haste slowly.

Meantime we have gradually increased the speed of our N. C.

film until it has come up to that of the speed film—and this without loss of its keeping qualities, or other good qualities. So, now, all Kodak film is speed film and the special speed emulsion has been discontinued.

Owing to the wide latitude of Eastman film there is little danger of spoiling negatives by over-exposing. It is a well-known fact that practically all negative emulsions will not stand for much less than the normal exposure and still give good results, but they will stand for a lot of over-ex-

posure. A large percentage of the amateur's failures are the result of under-exposure. There are very few failures from over-exposure. Therefore, if you will keep on giving the same exposures as heretofore, not giving shorter exposures on account of speed film, the average results will be greatly improved.

As a matter of fact, on a normal exposure, it would always have been difficult to detect any difference between the speed and the regular film. On under-exposures of the same subject, with the same light, same stop and same shutter speed, the difference in favor of speed film was formerly very marked. You might have difficulty in proving this fact to-day, because, as above stated,

we have been gradually bringing up the N.C. film to the speed film speed—and the film you have recently used was, therefore, practically as fast as the film now marked "speed."

Speed film will help out a bit on cloudy days, but you need not cut down on bright days for fear of over-exposure. Within very wide limits, over-exposure can mean nothing worse than a slow printing negative. Under-exposure frequently means total failure.

Speed film will give you better results—will help out when the light is weak, will give the same kind of a negative, with the same exposure, when the light is strong. These are some of the advantages you obtain in the film we are now supplying.



A French Windmill

Made with No 3A Folding Kodak



Sending Down the Diver

Made with No. 3A Folding Pocket Kodak



Killarney from the Kenmare Road

GETTING SHARP PICTURES

BY DR. C. E. K. MEES

IF we take a photograph with a Kodak, and find that it is not sharp after being developed, one of three different things was wrong:

(1) We failed to hold the camera still, or

(2) The subject of the photograph was moving too quickly, or

(3) The camera was not focused correctly.

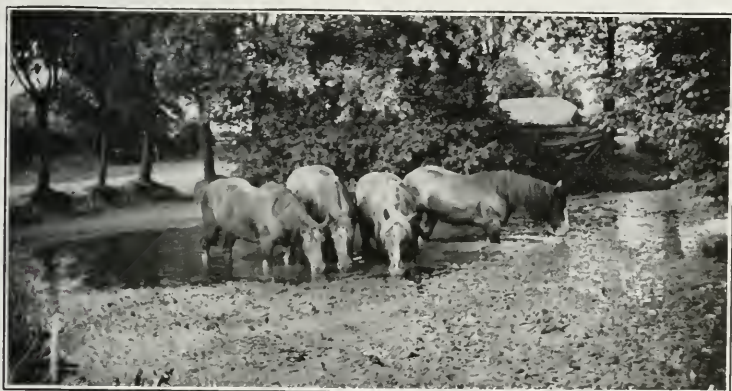
Most people fail to pay sufficient attention to holding the camera still. Just at the moment of ex-

posure the attention should be concentrated on this point. The camera should be held firmly and great care should be taken not to *jerk* the camera in releasing the shutter. A little practice in this, without a film in the camera, is advisable. It will probably be found at first that in releasing the shutter there is a tendency to give a jerk to the camera as a whole, but with a little practice the camera can be supported partly by the fingers of the hand that is

used to release the shutter so that no jerk results. *So many pictures are spoiled by not holding the camera still* that attention to this point will be well repaid. It is not possible to hold a camera still at arm's length, nor immediately after running or walking fast. If any exposure longer than $\frac{1}{25}$ of a second is to be given, the camera must be placed on a tripod or on some other firm support. Many people who always jerk the camera when pressing down the shutter trigger can avoid all difficulty by the use of the cable-release.

Not many pictures are spoiled by the movement of the subject so long as the camera is not used for photographing rapidly-moving objects. Figures in the distance will be sharp with an exposure of

$\frac{1}{25}$ second, but for children playing near at hand, *in bright sunlight*, the shutter should be set at $\frac{1}{100}$ second; while for cyclists, autos, and any racing or sports, such as tennis, golf, or baseball, no speed below the highest of the Optimo or Compound shutters will be effective unless the subjects are, say, 100 feet from the camera. For such special subjects a Graflex with a focal plane shutter is far more suitable than any other camera. It is a great mistake to attempt subjects beyond the scope of the camera being used. A Brownie, which will make excellent pictures of landscapes and groups, will fail to get anything but a blur if it is used to photograph a locomotive rushing past.



A Cool Drink

Made with No. 3 Folding Brownie

A frequent cause of unsharp pictures, however, is inaccurate focusing. Fixed focus cameras, such as the box Brownies, are focused on the nearest point to the camera which will still enable the extreme distance to appear sharp in the picture. In this way objects in the middle distance are perfectly sharp and even near objects are sharp, provided that they are not *too* near.

The following table of the *nearest* object which is sharp with these fixed focus cameras may be useful:

Vest Pocket Kodak . . .	9 ft.
No. 0 Brownie	9 ft.
No. 1 Brownie	11 ft.
No. 2 Brownie	13½ ft.
No. 2A and No. 3 Brownie	15 ft.

If we are using a No. 1 Brownie, for instance, as long as everything is farther off than 11 feet we can rely on getting a picture with everything focused sharply.

With the focusing Kodaks we must judge the distance of the object on which we wish the focus to be sharpest and set the scale to that, then we shall find that objects somewhat nearer and also objects a good deal farther from the camera are also sharp, and the smaller the stop used the deeper the zone of sharpness is.

It may be asked: Why not always use a small stop and avoid

all difficulty about focusing? The reason is that a small stop lets through less light and by using it we run the risk of under-exposure when making snapshots. *More Kodak pictures are spoiled by under-exposure than by anything else* so that we must be careful about this risk.

Another reason is that we do not always, or indeed often, *want* everything in the picture sharp. In a portrait, for instance, the figure itself should be sharp, but the background and surroundings will be much better out of focus so that interest is centered on the portrait alone. But when as much as possible of the scene is required to be sharp the best procedure is to be very careful to focus the camera on the principal object and then to give a time exposure with the smallest stop.

The stops that give the most generally pleasing degrees of sharpness when hand cameras are used are:

- U. S. 16 (f.16) for landscapes.
- U. S. 8 (f.11) for groups.
- U. S. 4 (f.8) for portraits.

The rule is to use no stop smaller than 16 for snapshots ($\frac{1}{25}$ second exposures) across a landscape. If this rule is ignored the negative will usually be under-exposed.

SOLVING PHOTOGRAPHIC PROBLEMS

ATHING that is worth the doing is worth doing well. When we make pictures we should try to make the best pictures we are able to produce.

The more experience we possess in picture-making the surer we are of obtaining the results we seek.

Experience is a competent teacher, but experience teaches slowly. The most economical and most rapid way of learning is by profiting from the experience gained by others. We have available the knowledge that scientists and practical workers have acquired from many years of experience in photographic work.

If you care to profit from this knowledge submit your photographic problems to us. We will take pleasure in assisting you.

If you wish us to criticise your negatives and prints be sure to send the negatives with the prints. Give all the data you can furnish. We can offer the most comprehensive criticisms when we know the month, the time of day, the light conditions that existed and the stop and shutter speed used when the exposure was made. We also wish to know the name and grade of paper on which each print was made. Negatives and prints will, of course, be promptly returned.

These services will be rendered free of charge.



ADDRESS ALL COMMUNICATIONS

“KODAKERY”

CANADIAN KODAK CO., LIMITED

TORONTO, CANADA



KODAK DRY MOUNTING TISSUE

only becomes sticky when you say the word—while you are handling it, it is simply paper.

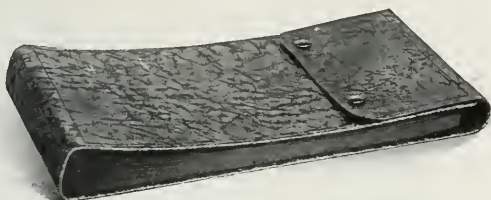
But when the print is in position and a hot flat-iron is applied, Kodak Dry Mounting Tissue out-glues glue and there can be no cockling or curling on even the thinnest album leaf.

PRICE."

Size, $3\frac{1}{2}$ x $3\frac{1}{2}$, 3 dozen . . \$0.10
 Size, $3\frac{1}{4}$ x $4\frac{1}{4}$, 3 dozen . . .10
 Size, $3\frac{1}{4}$ x $5\frac{1}{2}$, 2 dozen . . .10

Size, 4 x 5, 2 dozen . . \$0.10
 Size, $4\frac{1}{4}$ x $6\frac{1}{2}$, 1 dozen . . .10
 Size, 5 x 7, 1 dozen . . .10

CANADIAN KODAK CO., LIMITED
TORONTO, CANADA



HERCULES ALBUM

Two features of the album recommend it at once—the large pocket for prints ready for mounting and the flap with clasps which holds the covers flat. *The Hercules can never bulge.*

Attractive in appearance with flexible, genuine leather covers of blended gray and black. Furnished with fifty black leaves bound inside of cover with silk cord.

THE PRICE

A, 5 x 8	\$3.25	B, 7 x 11, \$4.00	C, 10 x 12, \$5.40	D, 9 x 14, \$6.25
Pkg. 12 extra leaves	.18	.25	.50	.60



A novel effect and you'll like it.

The WOODMAT

a new mount medium

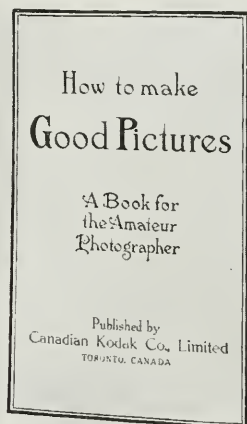
gives the effect of a finished picture—frame and all. It will help to make a “photographic masterpiece” look the part.

Priced from six to nine cents according to size.

CANADIAN KODAK CO., LIMITED

At your dealer's

TORONTO, CANADA



*If you don't know
how to make good
pictures, this book
will help you.*

If you do, it will aid you in making good pictures better.

"How to Make Good Pictures" is authoritative and written, as it is, in a practical, simple, straightforward manner, the valuable information it contains may be easily assimilated. Profusely illustrated.

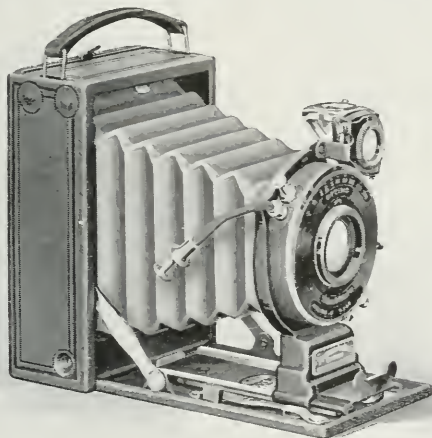
THE PRICE

"How to Make Good Pictures," paper covers, ...	\$.25
Library edition, cloth bound, ...	1.00

CANADIAN KODAK CO., LIMITED
TORONTO, CANADA

At your dealer's

Compact and Complete



Premo No. 12

The latest Premo for $2\frac{1}{4} \times 3\frac{1}{4}$ pictures, so carefully designed and cleverly constructed as to offer the highest degree of photographic efficiency in a camera that is only a trifle larger than the picture it makes.

It takes films or plates with equal facility, offers the advantage of ground glass focusing with either, and is constructed to accommodate lenses of any desirable type from the Rapid Rectilinear to the $f.4.5$ anastigmat with high speed ultra rapid Optimo Shutter. And it accommodates anastigmat lenses with no sacrifice of focal length.

A thin, smooth, handsomely finished camera—a notable acquisition to the equipment of any amateur photographer.

Premo catalogue free at the dealer's or mailed by us on request.

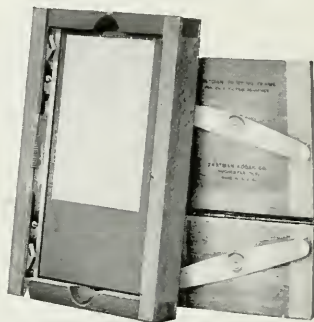
CANADIAN KODAK CO., LIMITED
TORONTO, CANADA

At your dealer's.

TWO KODAK HELPS:

Kodak Maskit Printing Frame

With the Maskit the negative and mask are held firmly in proper register—they can not slip—and the resulting prints have uniform white margins.



THE PRICE.

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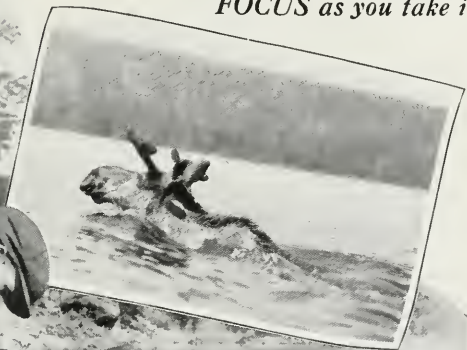
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The book goes into full details—tells you all the How and Why—explains how the Graflex does away with the finder—how it makes *sure* of focus and exposure.

Write for the Graflex Book.

Graflex is the camera that makes the most of the light, and the subject. What other camera, for example, can catch the kiddies at play indoors, or moving objects in the dull gray light of a rainy day—and get them SHARP in detail as a midday snap-shot? This book tells why the Graflex does. Write for it now.

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How the Graflex
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4, Graflex Book

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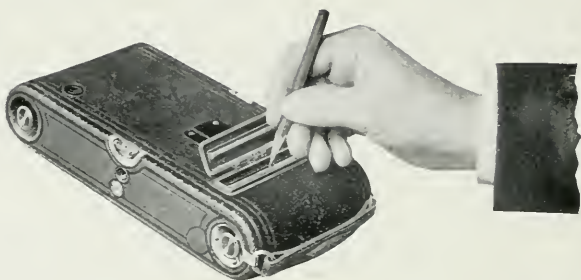
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PHOTOGRAPHERS



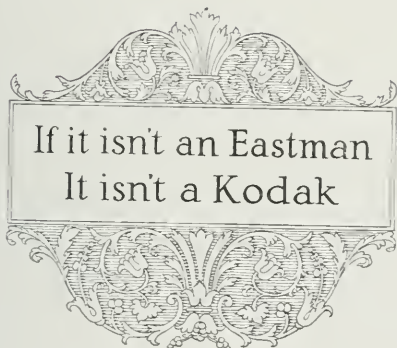
JANUARY, 1917

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TORONTO, CANADA

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VOL. IV

JANUARY, 1917

No. 3



Fig. 1 —Made at 3 P. M. in March; stop 16; 1-25 sec.; cloudy.

PICTURING SNOW SCENES

AFTER the first snowstorm of the season there are abundant opportunities for picturing the varied scenes that only a snowy winter can create.

The camera will record winter scenes as readily as it will make pictures in summer time, and splendid winter pictures can be found almost everywhere. It is

not necessary to go afield in search of them. Right about your own home, along the streets you travel daily, a big snow-storm will make many wondrous changes that snapshot exposures will translate into interesting pictures.

To demonstrate this statement we reproduce, among our illustra-



Fig. 2.—Made at 3 P. M. in March ; stop, 16 ; 1-25 sec ; cloudy.

tions, four photographs of the same gateway, all of which were made during the same week. Since these pictures, with their appended data, tell us much about the photography of snow scenes we will discuss them in detail.

Fig. 1 shows the result of selecting a point of view from which the foreground appears as an unbroken mass of newly fallen snow. This was made on a cloudy day when no shadows were visible. The lack of detail in the snow and the desolate appearance of the scene suggest the dreary side of winter. This picture would be far more interesting if the foreground showed footprints or a path tramped through the snow.

Fig. 2 shows only a part of the

gateway. It was made from a different angle and a much nearer viewpoint than Fig. 1. While this is a more forceful picture than Fig. 1, because it shows prominent snow banks, the foreground also lacks detail and the scene likewise suggests a monotonously cloudy winter's day, and worse than that—poor photography.

In Fig. 3, which was made from nearly the same point of view as Fig. 2, we have a wholly different type of picture. The shadows tell us that the sun was shining. Most of the snow had been cleared from the walk, across which the snow water was flowing. The picture contains abundant detail and, instead of suggesting a dreary day, speaks of brightness.



Fig. 3.—Made at 4 P. M. in March, with sunshine ; stop, $f.32$; 1-5 sec.

Fig. 4 is still another type of winter picture. This was made immediately after Fig. 3, with the lens pointed against the light. A pocket note book was held above

and slightly in front of the lens to shield it from the sun, which was just above the field of view.

In Fig. 5 the shadows indicate that the sun was on the left side



Fig. 4.—Made at 4 P. M. in March, with sunshine ; stop, $f.32$; 1-5 sec.

of the camera. Those snow banks that are made by shoveling paths always show more pronounced inequalities, after a few warm days have made the snow "spongy," than can be found in wind-blown drifts.

The shadows in the foreground of Fig. 6 suggest a way to add interest to such scenes as Figs. 1 and 2 portray, when the sun is shining and there are nearby trees to cast shadows across the foreground.

To appreciate more fully what our illustrations teach we must also consider the data under these pictures:

The exposures given Figs. 1 and 2 were too short for recording detail in the tree trunks. These represent dull-day winter scenes.

Since there was no detail in the foreground to be recorded nothing of interest could have been added to either picture by exposing long enough ($\frac{1}{2}$ second) for recording detail in the tree trunks.

The $\frac{1}{25}$ second exposure with stop *f.32* (U.S.64) that Fig. 3 received is practically equivalent to the $\frac{1}{25}$ second exposures with stop 16 that were given Figs. 1 and 2, but Fig. 3 shows that instead of being made on a cloudy day it was made when the sun was shining brightly across the field of view. This explains the detail that Fig. 3 contains.

The same stop and the same shutter speed were used when making Figs. 3 and 4. The former shows ample detail in the stone wall while the latter does not.



Fig. 5.—Made at 3 P. M. in March, with sunshine; stop 16; $\frac{1}{25}$ sec.



Fig. 6.—Made at 3 P. M. in March, with sunshine ; stop. 16 ; 1-25 sec.

Fig 3 shows that the side of the subject on which the sun was shining faced the lens, while Fig. 4 shows that the lens was pointed toward the shadow side of the subject, that is, the sun was shining on the side of the wall that is not shown in the picture. Note the stop used. Both subjects were close to the camera, the nearest part of the foreground in each being only about six feet from the lens. The focus was set at twenty-five feet. When working very close to any subject, it is necessary to use a small stop if both nearby and distant objects are to be focused as sharply as possible.

Figs. 5 and 6 were made with the same snapshot exposures we would give in summer time, because the sun was shining brightly and the shadows were receiving light reflected by the snow.

Pictures of snow scenes can be made with any hand camera, by giving a snapshot exposure between the hours of 10 and 3.

If the day is bright without sunshine the pictures will record the snow and the prominent objects within the field of view, but they will not record detail in dark objects that are near the camera. Figs. 5 and 6 show what a snapshot will yield when the winter sun shines brightly.

To make such pictures as Figs. 3 and 4 represent, with cameras that have neither the shutter speeds nor the stop markings mentioned, place the camera on a tripod, use the smallest stop and make a time exposure by opening

and closing the shutter as quickly as possible.

In a later number we will explain and illustrate how to make striking pictures of paths through snow drifts.



AIR BUBBLES IN ANASTIGMAT LENSES

It may seem strange that anastigmat lenses should contain small air bubbles when less high-

ly corrected lenses have none, but the fact of the matter is that these bubbles cannot be wholly gotten rid of during the process of manufacturing the special glass which must be used for making anastigmats, without impairing the optical qualities of the glass.

While these bubbles usually have the appearance of tiny discs they do not affect the definition of the lens in any way. They merely prevent a part of the light that reaches the lens from passing through it. This loss of light is so extremely small that it can only be measured with the most delicate instruments and it has no appreciable effect on exposure.

While it may occasionally happen that a small anastigmat is wholly free from air bubbles this fact does not indicate that the lens is in any way superior to one in which a few bubbles are present.

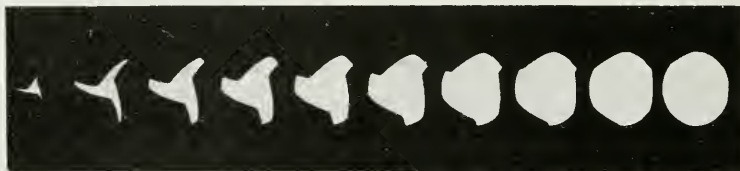


A Cornwall Fishing Smack
Made with No. 1A Folding Kodak



A Ruined Normandy Abbey

Made with No. 3A Special Kodak on Tripod. Stop, $f/32$: 1 sec.



SHOWING HOW THE KODAK

SOME years ago H. G. Wells wrote a story which he called "The New Accelerator." The idea was that a drug was found which, when a man drank it, made him able to think and move and live a thousand times as quickly as he normally did, so that every movement of his was a thousand times as rapid, and by contrast all other movements seemed a thousand times as slow. The wink of an eye, for instance, observed by the man who had taken the drug, seemed a painfully slow closing of the lid and then a long period during which the eye was closed, and then an opening as slow as the closing.

Of course, such a drug exists in the realm of imagination only, but an instrument has been made which can take its place for some special purposes. Such an instrument is the shutter tester used in the Kodak Research Laboratory.

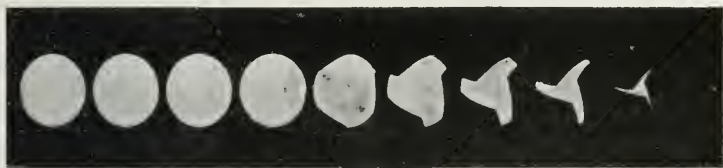
This instrument can take a thousand pictures a second of the movement of a shutter, so that in

the one-fiftieth of a second in which the shutter is opening and closing twenty pictures can be taken. Moreover, each picture is taken in so short a time, only $\frac{1}{50000}$ th of a second, that the shutter leaves are represented as standing still.

If we take the shutter out of a Kodak and put it in the testing instrument, our first picture will show the leaves just beginning to open and letting a spot of light through in the middle; in the second picture the leaves are sufficiently open to begin to show their form, and then in each successive picture they open more until finally the whole aperture of the lens is shown, and then the leaves begin to close until, finally,



Grace
and
Beauty
Afloat



SHUTTER OPENS AND CLOSES

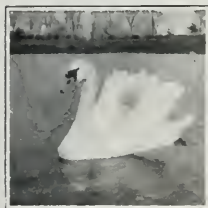
they are completely shut and we get no more record.

It might seem that it is of no great interest to a photographer to know how his shutter opens and closes, since he only requires to know that he can rely upon getting the approximate exposure which is marked on the shutter; but when we say that a shutter gives $\frac{1}{50}$ th of a second exposure, we mean, of course, that the shutter is open for $\frac{1}{50}$ th of the time that it would be open if we gave an exposure of one second. As a matter of fact, however, no shutter can open instantaneously, and for part of the $\frac{1}{50}$ th of the second the shutter is only partly opened and for part of it it is closing again. The amount of light

which a shutter lets through in an exposure which lasts, from beginning to end, $\frac{1}{50}$ th of a second is, therefore, less than $\frac{1}{50}$ th part of an exposure of one second because of the time taken by the shutter to open and close again.

The camera maker is constantly striving to make the shutter open and close more quickly so that it can remain entirely open during as great a part as possible of the very brief time in which it has to do its work, and the invention of the Kodak Ball Bearing Shutter represented a very noticeable progress in this direction.

In the Kodak Ball Bearing Shutter the leaves which open and close are fitted with ball bearings and, just as the ball bearing turned cycling from hard work into recreation so the ball bearing of the shutter enables the leaves to open and shut far more quickly than in the older types and so gives a greater proportion of the exposure with the lens fully uncovered.



Made with
No. 3A
Folding
Pocket
Kodak

SAME *f.* VALUE, SAME EXPOSURE WITH ALL LENSES

THE *f.* value of a lens is the relation that exists between the diameter of its effective aperture and its focal length. If, for instance, this diameter is 1 inch and the focal length is 8 inches the *f.* value is $\frac{1}{8}$, commonly written *f.8*.

In speaking of the so called "speed" of a lens we refer to the *f.* value of its *largest* stop. The speed at which a lens works is determined by the amount of light that passes through it, and while the amount of light that passes through a lens depends on several factors, some of it being absorbed and some reflected by

the lens, yet for practical purposes we regard it as being chiefly determined by the *f.* value of the stop used. The larger the stop the more light the lens will pass and the shorter the exposure that need be given.

The largest stop on a meniscus lens is smaller than the largest stop on a rectilinear—the largest stop on a rectilinear being *f.8*. (U.S.t). An *f.7.7* anastigmat is nearly 8% faster than a rectilinear, an *f.6.3* anastigmat is about 62% faster and an *f.4.5* anastigmat (which can be fitted to the No. 1 Autographic Kodak Special, the No. 12 Premo and to all models of Graflex cameras) is about three times as fast as a rectilinear, but, it must be remembered that when any anastigmat is stopped down to, say, *f.8*, it works at *f.8* speed and it then requires the same exposure that any other lens requires with stop *f.8*. The safe rule is, to give the same exposure with all kinds of lens when the stop used on each has the same *f.* value. When you wish to give shorter exposures with an anastigmat than with other lenses you must use the anastigmat with a larger stop than you would use with other lenses.



Volandan Fisher

Made with No. 3 Folding Kodak



Arch of Vespasian in Rome

Made with No. 3A Folding Pocket Kodak. Stop $f/32$; 1_2 sec.



Fellow Laborers

Made with No. 1 Kodak Junior

FILM PACK DEVELOPER

REMEMBER that Premo Tank Powders should be used for developing Film Pack Films in the Premo Film Pack Tank. Should they be developed with Kodak Tank Powders, for 20

minutes at 65 degrees, they will be under-developed. The reason for this is, that while both Kodak Roll Film and Premo Film Pack Film have exactly the same emulsion, Film Pack Film is specially



Fellow Players

Made with No. 2 Brownie

treated to prevent abrasion when drawing out the tabs after the exposures have been made. This special treatment in no way affects the speed or the quality, but it does affect the development of the film.

While Film Paek Film *can* be

correctly developed with Kodak Tank Powders—by increasing the time of development 25%—it is best to avoid confusion by always developing Film Paek Film in the Film Paek Tank with Premo Tank Powders—for 20 minutes at 65 degrees.

THE LURE OF

FRAGMENTS OF OUTDOORS F



LANDSCAPE

KODAK AND BROWNIE





The Tombs of Assiut
Made with No. 3A Folding Pocket Kodak

HOW MUCH EXPOSURE SHOULD WE GIVE?

BY ER. C. E. K. MEES

WHEN negatives are defective it is more often due to incorrect exposure than to any other cause.

The exposure to give depends on two factors: (1) the strength of the light, and (2) the sensitiveness of the film; but since the sensitiveness of the film always remains the same, we need only consider the light which reaches the film through the lens.

In order to find out how much light is reaching the film during exposure we must consider (1) how much light there is coming from the sky, (2) what sort of subject we are photographing, so

that we can know how much of the light it will *reflect*, and (3) how big a lens opening is being used.

THE LENS OPENING

Let us assume that the exposure is made at $f.8$ —the stop which is marked 4 in the Uniform (U.S.) System. We can then calculate the exposure for any other stop, since stop $f.11$ or U.S. 8 requires twice the time of exposure that stop 4 does; $f.16$ or stop 16 requires four times, and so on.

DIFFERENT SUBJECTS

If we take as the standard subject an ordinary landscape show-



The Torrent

Made with No 3A Folding Pocket Kodak, by A. C. Smalley

ing the sky, without any heavy foreground, groups and street scenes and landscapes with dark foregrounds will need twice as much exposure as this standard subject, and portraits and scenes

in the shade of trees or houses will want four times as much exposure, while sea or open beach or snow scenes will want only half the exposure of the standard subject. This rule, then, will en-

able us to deal with different kinds of subjects.

But there is one subject for which no rule is really satisfactory, and that is a photograph taken inside a room, whether it is a photograph of the room itself or of a person sitting in the room. Only experience or some method of measuring the light inside the room will enable the exposure under such circumstances to be judged accurately, but for a first trial about 400 times the exposure should be given that would be given on the standard landscape out-of-doors.

THE LIGHT FALLING ON THE SUBJECT

The light falling on the subject depends on what one may call the

light conditions at the time, and these depend on three factors—the time of year, the time of day and on the weather.

If we take as our standard time the middle of the day—10 to 2—in the late spring and summer, then during the middle of the day in the fall and winter, or during the hours between, say, 8 and 10 and 3 and 5 in spring and summer, twice as much exposure should be given, while during the same hours of the morning and afternoon in the fall and winter the exposure should be four times as long.

Turning to the weather, we may call bright sunlight the standard. When it is cloudy bright, that is, when there are light clouds over the sun, double the exposure will



The Picnic

Made with No. 3A Folding Pocket Kodak



The Bridge of Sighs, Venice

Made with No. 3A Folding Pocket Kodak; stop $f/11$; $\frac{1}{2}$ sec.

be required. When it is cloudy dull we shall have to give four times, while when the clouds are very dark and the day is gloomy eight times will be needed.

Now, having classified the time and the weather and the subject, we can best put the whole matter in the form of the table given below:

EXPOSURE GUIDE

Subject	Figure	EXPOSURE TABLE		
		Index No.	Shutter	Stop
Snow, sea and beach scenes	1/2	1/2	50	16
Ordinary landscapes showing sky	1	1	50	8
Groups, street scenes, landscape no sky	2	2	50	4
Portrait (outdoors) shaded scenes	4	4	25	4
Interiors, portraits indoors, etc.	400	8	*B	16
TIME OF YEAR AND DAY				
Spring and summer—middle of day	1	16	*B	8
Morning and late afternoon	2	32	*B	4
Fall and winter—middle of day	2	400	†T 4 Secs.	4
Morning and afternoon	4	800	†T 8 Secs.	4
WEATHER				
Sunny	1	Above 800 give proportionate extra time.		
Light clouds over sun	2			
Cloudy, dull	4			
Heavy clouds, very dull	8			

* Use a tripod or place the camera on something rigid to hold it still, press and release shutter quickly (1/4 second).

† Use a tripod and give exposure indicated.

For sharp results take care to judge distance correctly.

In order to use this table find the figure given for the *subject*, the figure given for the *time* and the figure given for the *weather* and multiply them all together. The number obtained by multiplying them together we can call an index number, and then if we look at the exposure table on the right we shall see given there the shutter speed to use and the stop number at which the diaphragm should be set. It will be remem-

bered that Stop 4 means *f*.8, Stop 8 means *f*.11 and Stop 16 means *f*.16.

From this table it will be seen that when the index number is greater than 4 we cannot give an instantaneous exposure and the only safe thing to do is to use a tripod or place the camera on something rigid, to hold it still. When the index number is either 8, 16 or 32 set the shutter to B and press the shutter trigger and



An Egyptian Canal

Made with No. 3A Folding Pocket Kodak

release it as quickly as possible. When the index number is 400 or 800 set the shutter to T and use a watch for timing the exposure. Remember that in indoor photography it is always essential to use a tripod and give a time exposure.

Let us take an example of the use of this table: Suppose that we are photographing at the beginning of July and in the middle of the day, then the figure for the time will be 1, but if the wea-

ther is cloudy and dull the figure for the weather will be 4, and if we are taking an ordinary landscape the index number will be 1. $1 \times 4 \times 1 = 4$. The numbers in the Exposure Table opposite 4 tell us we must set our diaphragm at Stop 4 ($f.8$) and the shutter at 25.

By using this little calculating table, we shall be able to get a much better proportion of good exposures than we could possibly get by guess work.



Made with a Graflex, by J. E. Abbe

STOP QUARRELING

THE Autographic Kodak is a long step toward an ideal every amateur should hold—the ideal of orderly memoranda. Very often nothing could be more disappointing than not to know just where and just when a picture was taken. We think at the time we take it that we will remember everything—it may all seem so vivid. We think we will remember which of the baby's birthdays it was, or which stop it was, or that it was cloudy, or that this was the town hall of So-and-So. But very often we don't.

Only the other day I heard that baby dispute, and, would you believe me, it was the child's mother and father who could not agree as to whether the picture

showed him at seven or eight months.

"I remember," said Mother, "because I had just bought that dress."

"And I remember it," insisted Father, "because I had just bought the 3A."

There was no settling it at all. It never will be settled. The baby won't remember—and the camera can't tell because Father had failed, with his first roll, to provide the autographic film.

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ANYTHING that is worth the doing is worth doing well. When we make pictures we should try to make the best pictures we are able to produce.

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If you wish us to criticise your negatives and prints be sure to send the negatives with the prints. Give all the data you can furnish. We can offer the most comprehensive criticisms when we know the month, the time of day, the light conditions that existed and the stop and shutter speed used when the exposure was made. We also wish to know the name and grade of paper on which each print was made. Negatives and prints will, of course, be promptly returned.

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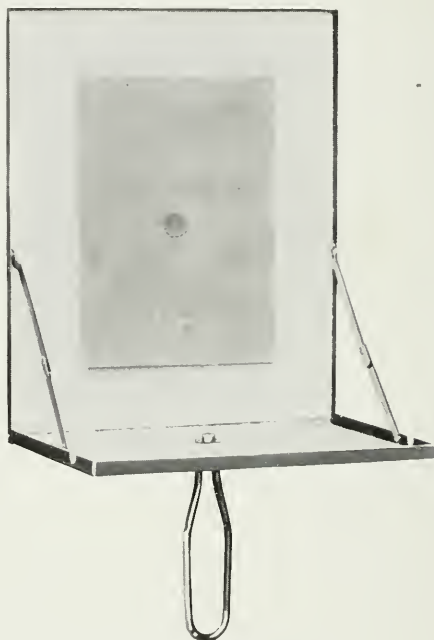
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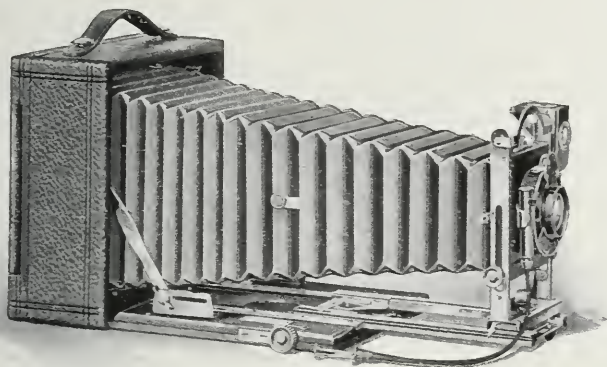
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—get them with a Graflex.

Pictures you can't take with the usual camera, kiddies at play indoors, street scenes in a dull light, snapshots in the shade:

—take them with a Graflex.

Pictures other cameras lose thro' the finder's uncertainty or guessing at distance:

—make sure of them with a Graflex.

The Graflex difference in principle makes SURE of the focus and shows you the picture FULL-SIZE until the shutter snaps.

Send for the Graflex Book

Tells in full detail what the difference is and how and why a Graflex results in finer pictures.

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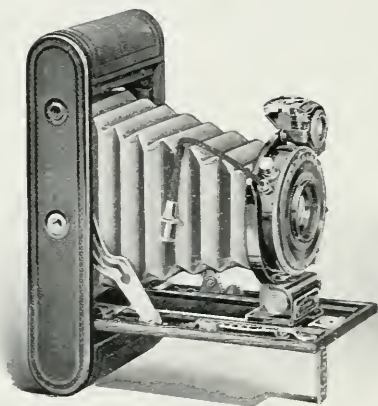
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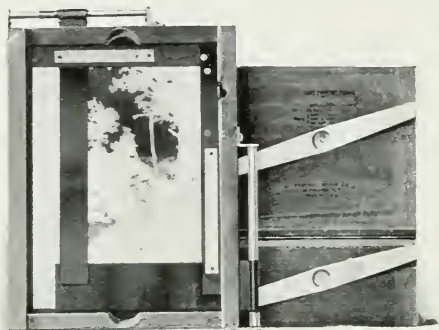
A
MAGAZINE *for* AMATEUR
PHOTOGRAPHERS



FEBRUARY, 1917

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A mask that may be adjusted as the amateur wills within the limits of the regular amateur sizes.

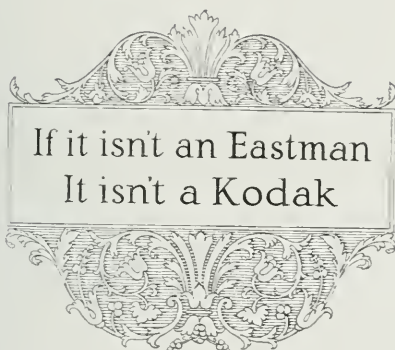
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It isn't a Kodak



"Good Bye!"

From No. 3A Special Kodak Negative

KODAKERY

A Journal for Amateur Photographers

PUBLISHED MONTHLY—YEARLY SUBSCRIPTION, 50 CENTS; SINGLE COPIES, 5 CENTS.

VOL. 1V

FEBRUARY, 1917

No. 4



Fig. 1.—Made in bright sunlight at 4 P. M., in March; stop, 16; 1-25 sec.

THE PATH THROUGH THE DRIFT

WHEN the snow is piled so high alongside the path that it suggests rugged masses of whitened rocks, and when the sunlight, coming at any angle from in front of us, places highlights on the summits of the lumps and ridges of the snow, we have before us the subject and the light conditions for making pictures that will tell the story of a "good old-

fashioned winter"—such a story as is told by our illustrations.

When the method of their making is understood it becomes just as easy to obtain such pictures with snapshot exposures as it is to make snapshot pictures of summer landscapes.

We make snapshots of summer landscapes with the sun behind or to the right or left of the camera,



Fig. 2.—Made in bright sunlight at 3 P.M., in March; stop, 16; 1-25 sec.

but we can only make striking pictures of paths through snowdrifts when the sun is either directly in front, or somewhat to the right or left of directly in front of the camera, because it is only when snow pictures are made from a point from which we can see the shadows on the snow that the shadows can be recorded in the picture, and, unless these shadows are recorded the snow will appear as a blank, uninteresting mass of white.

When the sun is in front of the camera we are working against the light, and when working against the light a hat or some other opaque object must be held in such a position that it will cast a shadow on the lens without its being visible when looking in the

finder, to prevent the sun from shining in the lens and fogging the film.

Our illustrations were made by the method we have described.

The shadows on the snow in Fig. 1 show that the picture was made *directly* against the light. The sun was just far enough above the building not to be included in the field of view. Note the light on the building. This is not direct sunlight, for the sun was shining on the opposite side of the house. It is light that came from the northern and eastern sky, and light that was reflected by the snow.

Fig. 2 represents the same subject photographed from a different point of view, at an earlier hour of another day, the sun be-



Fig. 3.—Made in bright sunlight at 4 P. M., in March; stop, 16: 1-25 sec.

ing in front and slightly to the left of the camera.

The path shown in Fig. 3 extends nearly east and west. The sun was just above the tree at the extreme left of the picture.

The exposures, $\frac{1}{25}$ th of a second with stop 16, were ample for recording the shadows on the snow but were too short for recording detail in the darker objects. Had a Kodak Sky Filter been used, *upside down* (that is, yellow part at the bottom and clear glass part at the top of the lens), so the light from the snow would have been subdued in passing through the yellow part of the filter and a $\frac{1}{25}$ second exposure given with stop 8 (*f.11* on anastigmat lenses) the shadows on the

snow would have been even better rendered and the same amount of detail would have been recorded in the other parts of the subjects.

Snapshot pictures of sun lighted snowbanks can be made with all kinds and all sizes of hand cameras between the hours of 10 and 3 in January and February, or between 9 and 4 in March. With cameras having the shutter speed marking and the stop markings we have mentioned give the exposures stated. With all other kinds of hand cameras that have more than one stop use the second stop when the Kodak Sky Filter is not used, and the largest stop when the Sky Filter is used, and make a snapshot exposure.

EXPOSE FOR THE SHADOWS

GRADATIONS of light and shade illuminate nearly every subject we wish to photograph. Unless we desire to make silhouettes our pictures will most faithfully represent the subjects portrayed when they record as many

as possible of these gradations.

The lights and shades of a picture are broadly classified as highlights, halftones and shadows. The strong lights in the picture are known as the highlights, the dark parts the shadows and the middle tones, which are neither very light nor very dark, are called the halftones. Detail, which consists of minor gradations of light, should be recorded in all but the strongest lights and deepest shadows.

Now in order to record the detail in the highlights, halftones and shadows of a photograph we must expose for the shadows and let the highlights take care of themselves.

But, it may be inquired, will not this result in over-exposing the highlights? It will not unless there is great contrast between the lights and shadows of the subject, and, even should the contrast be great,



Fig. 1. Stop. 16; 1-50 sec.; 3 P.M. Sept.

the latitude of the film will take care of considerable over-exposure without impairing the quality of the negative.

Our illustrations represent a scene that contained very strong contrasts of light and shade. These are reproductions from straight prints that were made from straight negatives. By this we mean that neither negatives nor prints were manipulated in any way whatever. The negatives were cut from the same roll of film, which was developed for 20 minutes at 65 degrees in a Kodak Film Tank with the Film Tank Developer Powders.

Fig. 1 shows the result of exposing for the highlights only. Fig. 2 shows the result of exposing for the shadows and letting the highlights take care of themselves. The data under Fig. 2 tells us that a $\frac{1}{2}$ second exposure with stop 16 (which requires a tripod) was needed for recording

detail in the picture. Though the sun was shining brightly when the exposure was made the greater part of the subject was in the shade of tall trees. Such a subject always requires a longer exposure than is needed for an open landscape.

Remember that the darker the



Fig. 2. Stop, 16, 1-5 sec.; 3 P.M. Sept.

shadows the longer the exposure needed for recording detail in the shadows, and that only by exposing for the shadows can ample detail be recorded throughout the picture.

Do not over-develop your negatives, or the highlights will

become so dense that the high-light detail will not print. The surest way to guard against over-development is to develop the negatives in the tank, exactly according to the instructions that are furnished with the tank.



PHOTOGRAPHING INTERIORS

PLACING the camera on a tripod and making time exposures by the daylight that enters through doors and windows is the simplest way of photographing rooms in the home.

Those who have observed that the light is strong in some parts of a room and weak in other parts may doubt that good results can be obtained by so simple a method.

The secret of success lies in controlling the light by raising or lowering the window shades and opening or closing doors so the light will be as uniform as possible in those parts of the room that are to be photographed, and in always having the light come from behind the camera or from any one or more sides *excepting that side of the room toward which the lens is pointed*. It is also necessary to give an exposure that is long enough for recording detail in all but the darkest shadows.

Our illustrations are from photographs that were made by this method. The rooms were photographed on a day of bright sunshine. The only change made in the arrangement of the rooms was the removal of such furniture as was too near the camera.

Fig. 1 was made at 10 A.M. The walls, ceiling and woodwork were light colored. The light came from the east, through one window and one open door, both of which were behind the camera. The south wall is shown on the left side of the picture. The staircase is along the west wall. Though the shades on the staircase windows were drawn down they were so light colored that the outlines of the window sashes could be seen through the shades.

Fig. 2 shows another view of the same room. The open doorway is in the north wall. The light came from the right side of the camera.

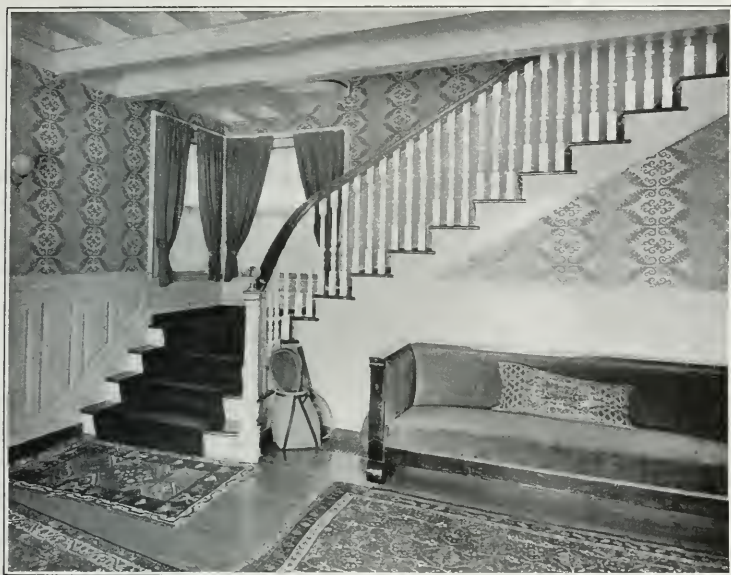


Fig. 1.—Made at 10 A. M.; stop, *f.22*; 3 minutes

The strongest light that entered the room beyond the doorway came through windows at the left, which could not be seen from the position of the camera.

The walls, ceiling and furnishings recorded in Fig. 3 were very dark. The sun was shining directly against the windows shown in the picture, thus casting shadows of the window bars on the dark colored shades. This picture was made by the light that came through two large bay windows that were opposite each other. The shadows on the floor show that a much stronger light came

through the windows on the left than through those on the right side of the camera.

Fig. 4 shows parts of three rooms. The view is looking east. The farthest room was lighted by windows on the north, east and south sides and the other rooms by north and south windows. The shrubbery, faintly seen above the fern, was outdoors in the shade and very close to the building.

The unique effects shown in Figs. 5 and 6, which were made on a dull day, were obtained by making an exposure indoors for



Fig. 2.—Made at 11 A. M.; stop, $f.32$; 6 minutes

the outdoor view that is seen through the closed windows.

When photographing interiors it is imperative to observe the following rules.

The camera must be placed on a tripod or other rigid support for making time exposures. If time exposures are made with the camera held in the hands the picture will be blurred, and if snapshots are made the negatives will be under-exposed.

The camera must be *level*, so the vertical lines of the walls, as seen in the finder, are parallel with the sides of the finder, or the picture will show the walls tapering.

More of the floor than of the ceiling must be shown, or the room will appear to be top-heavy.

Before making the exposure place your head squarely in front of the lens and look for reflections in pictures or mirrors (note the



Fig. 3.—Made at 3 P. M.; stop, 16; 10 minutes

reflection in the picture above the mantle in Fig. 3) and, if any are seen, place a wad of paper behind one corner of the frame, thus changing its angle. A slight change of angle will not be noticed in the picture. Never use a large stop or part of the picture will be out of focus.

Never place furniture in the foreground near the camera, or it will appear too large in comparison with the furniture that is farther from the lens.

Do not include a lot of furniture within the field of view, or the picture will suggest that the room is crowded. Make different views of the same room, with each piece of furniture as nearly as possible in its accustomed place.



Fig. 4.—Made at 4 P. M.; stop, *f.22*;
2 minutes

To determine the exposures for interiors we must know whether our camera has a double or a single lens. The front combination of a double lens is in front of the shutter and is visible whether the shutter is open or closed, while a single lens is placed be-

hind the shutter and is not visible when the shutter is closed.

With all double lens hand cameras use stop 16, and with all single lens cameras that have no stop marked 16 use the second stop and give the exposures recommended in the following:

EXPOSURE TABLE FOR PHOTOGRAPHING INTERIORS

White walls and more than one window:

bright sun outside, 4 seconds;
hazy sun, 10 seconds;
cloudy bright, 20 seconds;
cloudy dull, 40 seconds.

White walls and only one window:

bright sun outside, 6 seconds;
hazy sun, 15 seconds;
cloudy bright, 30 seconds;
cloudy dull, 60 seconds.

Medium colored walls and hangings and more than one window:

bright sun outside, 8 seconds;
hazy sun, 20 seconds;
cloudy bright, 40 seconds;
cloudy dull, 80 seconds.

Medium colored walls and hangings and only one window:

bright sun outside, 12 seconds;
hazy sun, 30 seconds;
cloudy bright, 60 seconds;
cloudy dull, 120 seconds.

Dark colored walls and hangings and more than one window:

bright sun outside, 20 seconds;
hazy sun, 40 seconds;
cloudy bright, 80 seconds;
cloudy dull, 2 minutes, 40 seconds.

Dark colored walls and hangings and only one window:

bright sun outside, 40 seconds;
hazy sun, 80 seconds;
cloudy bright, 2 minutes, 40 seconds;
cloudy dull, 5 minutes, 20 seconds.

This table is calculated for rooms whose windows receive the unobstructed light from the sky, and for exposures made not earlier than three hours after sunrise or later than three hours before sunset.

When the next smaller stop than the one mentioned, on either single or double lens cameras is used, give twice the exposure stated in the table.

If in doubt whether the walls and hangings of the room should be classed as medium or dark



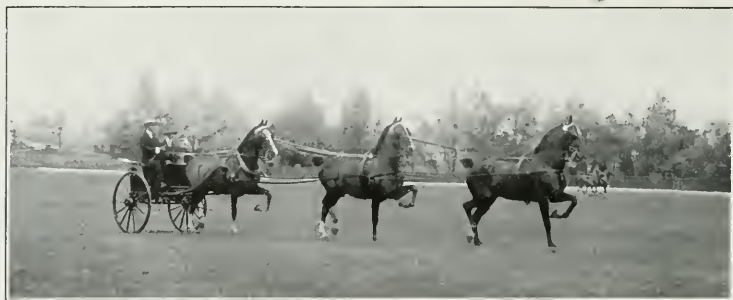
Fig. 6.—Made at 10 A. M.; cloudy day; stop, *f.22*; 10 sec.



Fig. 5.—Made at 10 A. M.; very cloudy; stop, *f.22*; 5 sec.

colored give the exposure recommended for dark colored walls and hangings.

Conditions will vary greatly in different rooms, but no matter what the conditions may be, if the rooms contain one or more windows you can make good pictures of parts of such rooms by the method we have described.



The Random

Copyright, 1916, by L. Stanger

Made by L. Stanger, with 1-550 sec. Exposure, on a Seed Graflex Plate

WHY A GRAFLEX?

WHAT are the advantages of using a Graflex? Mr. Stanger's picture "The Random," reproduced above, gives one of the answers to this question.

Mr. Stanger informs us that this represents a $\frac{1}{550}$ of a second snapshot exposure, on a Seed Graflex Plate, made while the horses were trotting, about noon on a cloudy day. To those who have never made pictures with a Graflex under similar conditions this statement may seem incredible.

Let us consider this statement and see if it will bear analysis: The shadows on the ground are faint. They are vertical shadows, appearing directly underneath the horses and the cart. In the United States the sun is never directly overhead, so we never ob-

serve vertical sun shadows. These are exactly the kind of shadows we may see on a cloudy day under objects that are a few feet above the ground out in an open field.

Note the detail in the picture. This indicates ample exposure. To secure ample exposure in $\frac{1}{550}$ of a second on a cloudy day a lens of large aperture, an unusually efficient shutter and a remarkably fast plate must be used.

Lenses of $f.4.5$ aperture are fitted to Graflex cameras. These are large aperture lenses. They are about twice as fast as $f.6.3$ lenses and about three times as fast as rectilinears.

The Graflex Focal Plane Shutter is built in the body of every Graflex camera. It consists of a curtain having rectangular apertures of various widths, extending

entirely across the focal plane, in front of and very close to the film or plate. This shutter will make automatic exposures ranging from $\frac{1}{10}$ to $\frac{1}{1000}$ of a second and time exposures of any duration. Instead of considerably reducing the amount of light that passes through the lens, as happens during the opening and closing of between-the-lens shutters, the Graflex Focal Plane Shutter allows nearly all the light that passes through the lens to act on the film or plate during the entire period of exposure. This makes the Graflex Shutter more efficient than other shutters.

For regular work and for all but work that must be done under most adverse conditions, the Graflex, with its *f*.4.5 lens and its focal plane shutter, when used with film, will prove an adequate

equipment, while for emergency work, when conditions are most adverse, the extremely rapid Seed Graflex Plate will record the subject if it can be recorded at all.

These are the special features that make the Graflex more efficient than any other camera for snapshot work.

While Mr. Stanger's picture shows what can be done with a Graflex under very adverse conditions, we wish to impress the fact that extremely short exposures should not be made when it is permissible to give more ample exposures. Even when photographing rapidly moving objects it is always best to give the most ample exposures that will arrest movement. A special Graflex exposure chart, which explains the shutter speeds needed for doing this, is furnished with all Graflex cameras.



Winter Joys

Made with No. 1A Folding Kodak

GLIMPSES ORIENTAL AND TROPIC LANDS

FROM KODAK
ALBUMS



Above, An African Desert Trio.
On the right, A Grove in Ha-
waii. Below, Scene at a Camel
Sale, near Cairo.





Above, An Algerian Street. On the left, A Bedouin Boy and Baby. Below, A Nile Freight Boat Under Full Sail.



Lake Kechumakooche,
Nova Scotia, Aug. 20, '16
Rainy Day Camp

GREETINGS from the

real wilds as I cruise in my own canoe,
without guides, from Bear River to
Rossignol Lake and down Liverpool River.
This cut with axe, tied with fish line,
stamped with pitch and sent out by
Micmac Indians. The same splendid
little KODAK is with me here that
has shared my experiences at King
George's Coronation, the bottom of
the Grand Canyon, the Grand Melets
of Mount Blanc, Hudson's Bay,
Catalina and Key West and made
them permanent pictures.

J. A. Cruikshank

This Birch Bark Letter to the publishers of KODAKERY speaks for itself. It speaks also in eloquent terms of the Kodak as a companion adventurer in the far and fascinating places of the earth. Perhaps we should say that it speaks above all of that love of life, that spirit of enthusiasm, which elicits from nature and from implements like the Kodak the best that is in them.

WHAT HAPPENS IN DEVELOPMENT

BY DR. C. E. K. MEES

AFTER a film has been exposed in the camera it must be developed to get the picture. The reason for this is that while the exposure does not make any *visible* change in the film it does produce an invisible change in it which makes it possible, by means of a chemical solution, to obtain an image corresponding to the scene to which it was exposed. This chemical solution is called the developer.

The sensitive part of the film, which is called the emulsion, consists of a thin layer of gelatine in which are imbedded the sensitive grains of silver bromide. Silver bromide is a chemical which can be attacked by the developing solution and turned into black metallic silver.

If we watch a film developing and see the image gradually appear, it seems as though the developer was adding something to the film to produce the image, but this is not what is happening at all. A developer is what is called in chemistry a "reducing" solution, and it plays the same part for the exposed silver bromide that the coke of a blast furnace plays for the iron ore. When iron ore is smelted with coke in a blast

furnace, the coke takes away the chemical substances which are combined with the iron and leaves only the metallic iron, and this process is called the "reduction" of the ore; in the same way the developer takes away from the silver bromide the bromine which is combined with the silver and leaves behind the metallic silver.

The grains of metallic silver which are left in the film appear black because they are small and irregular in shape.

We are accustomed to think of silver as a bright, white metal, but if we take silver and break it up into very small particles they will appear gray, and the grains of silver in the film are so spongy in their nature that they appear quite black.

There are many reducing agents known in chemistry but only a very limited number are available for use in photography, because, while they must be strong enough to reduce exposed silver bromide under the proper conditions, yet if they are too strong they will be able also to reduce the silver bromide which has not been exposed to light, so that we have to choose just those few substances which will remove the bromine



From a Hilltop

Made with No. 3A Folding Pocket Kodak

from the exposed silver bromide, but will not affect the unexposed grains.

If they are used alone, most of the developing substances, like pyro and hydrochinon, are not strong enough to reduce even the exposed silver bromide, but they can be made stronger by putting in alkali, so that a developer almost always contains alkali in addition to the developing agent itself. This alkali is usually added in the form of carbonate, though for some developers caustic alkali is required in order to give them sufficient reducing power. A reducing substance such as a developer has a great affinity for the oxygen of the air and so when

a developing solution is kept the oxygen of the air will oxidize it and spoil its reducing power. In order to stop this there is put in another substance which has a great eagerness for the oxygen of the air; this is sulphite of soda, which retards the oxidation of the developer without hindering its work in reducing the silver bromide. Lastly, a developer containing the developing substance and alkali and sulphite may be so strong that there is some danger that it will attack not only the exposed silver bromide but some of the silver bromide which has not been exposed to light, and so to restrain its activity and to keep it to its proper work a little

bromide of potash is sometimes added. Often, however, the bromide of potash is unnecessary and is omitted. No bromide of potash is used when films are developed in the tank with the tank developer.

The typical developer, therefore, consists of the developing agent, which may be pyro or metol or hydrochinon or a mixture of them, together with some alkali, usually in the form of carbonate, some sulphite, to act as a preservative, and perhaps some bromide, to restrain the action of the developer and to prevent chemical fog, which is the development of unexposed grains of silver bromide.

When the film is put into such a developing solution the developer penetrates into the gelatine and attacks the exposed grains of silver bromide, turning them into little black grains of silver so that a visible image appears. The developer is oxidized during this process and the oxidized developer, which cannot do any more work, diffuses out from the gelatine and its place is taken by fresh developer so that a constant supply of developing substance is going to the grains

of silver bromide, reducing them to silver, and coming out again in a used-up form. Development, therefore, takes a certain definite amount of time, the image growing in density and the negative increasing in contrast as the time is increased. Enough time must be given for the developer to do its work, but if the film is left in too long it will be over-developed; that is to say, too much of the



Wash Day

Made with No. 1A Folding Kodak

silver bromide will be reduced to metallic silver and the negative will appear too dense and strong.

When development is completed and enough of the silver has been produced, the film is put into the fixing bath, which is a

solution of hypo, a substance which can dissolve away the undeveloped grains of silver bromide and leave only the black grains of metallic silver which form the image, and then, after washing and drying, the film is ready for printing.



HOW AN AUTOGRAPHIC RECORD IDENTIFIED A STOLEN KODAK

BY J. E. MONCRIEFF

THE Vest Pocket Kodak which had furnished us so many interesting souvenirs of a trip through the Canadian Rockies, of our voyage across the Pacific and of journeys in Japan and China was stolen while I was showing some boys, in the grounds of an old Chinese temple, the Boy Scout trick of making fire by friction.

A reward of 1,000 cash (about 30 cents), which is a week's wages for a Chinese coolie, failed to effect the recovery of the Kodak, and informing the police proved equally unavailing.

Some weeks later I received word from a friend that a Kodak, which he suspected was the stolen one, had been offered him by a Chinaman named Fu—a dealer in odds and ends. This friend told Fu he could not use the Kodak without film and that he

first wished to make sure he could obtain a supply from a friend in the city. This apparently allayed any suspicions Fu might have entertained of his sending for me. When I arrived I was quite sure the Kodak was mine, but I would have been unable to positively identify it had the roll of film it contained, when stolen, been removed. The autographic records on the film established its identity beyond question, and after Fu realized this fact he preferred to accept 5,000 cash for the Kodak rather than have the matter brought to the notice of the police.

The autographic feature of the Kodak has not only enabled me to write a title and the date on each negative at the time the exposure was made, but also furnished the indisputable evidence that enabled me to recover my stolen Kodak.



Enlarged from one of the Vest Pocket Kodak negatives described
by Mr. J. E. Moncrieff in his story of the Stolen Kodak



A Roman Vista

Made with No. 3A Folding Kodak; stop, 16; $\frac{1}{2}$ sec.

FOR THE ASSISTANCE OF OUR READERS

THE first number of KODAKERY, published 40 months ago, contained an invitation to readers to send us negatives and prints for criticism. Many instantly availed themselves of the opportunity of learning how to improve their work. With every passing month an increasing number of readers submitted negatives and prints for our inspection.

From inquiries that were constantly being received it became evident that not only the beginners in photography, but advanced workers as well, often desired individual instruction in photographic processes with which they were not familiar.

This method of assisting photographers—by giving special attention to the needs of the individual worker—is performing a function that can be performed in no other practical way. The amateur who is confronted by a photographic problem submits it to us. We undertake to solve it for him.

When you desire information regarding any branch of amateur

photography tell us exactly the kind of work you wish to undertake, and if it is work that is to be done with a camera, state the name and size of camera you wish to use.

When sending prints for criticism also send the negatives from which the prints were made. It is only by examining the negatives that we can tell whether they were rightly or wrongly exposed and rightly or wrongly developed and it is only by comparing a print with the negative from which it was made that it can be determined whether or not the print is the best the negative can yield.

We wish to know the name and grade of paper on which the print was made, the month and the time of day when the negative was exposed, the stop and shutter speed used, and whether the negative was developed in the tank or in the tray.

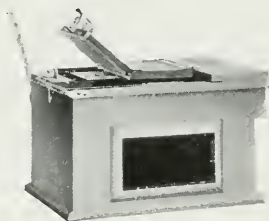
Prints and negatives sent for criticism will be promptly returned.

These services will be rendered free of charge.

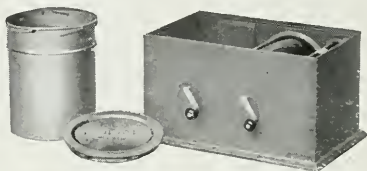
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full photographic efficiency.
Together they make every
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This seal outside the container means that the chemical or chemical preparation inside is exactly what it should be—not only Kodak tested but Kodak *passed*.

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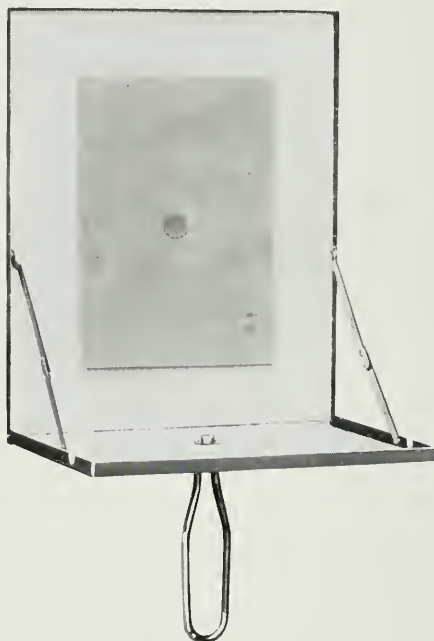
EASTMAN FLASH SHEETS

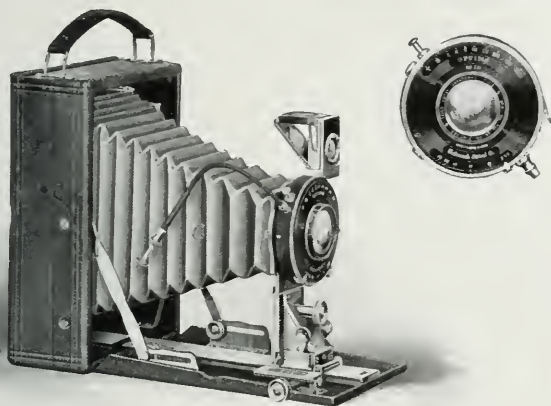
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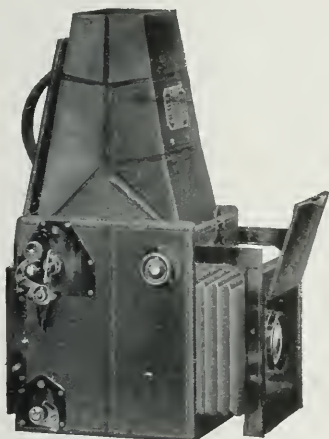
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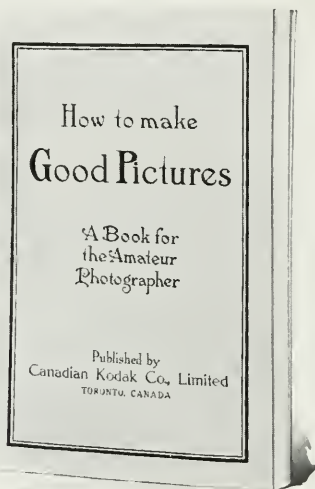


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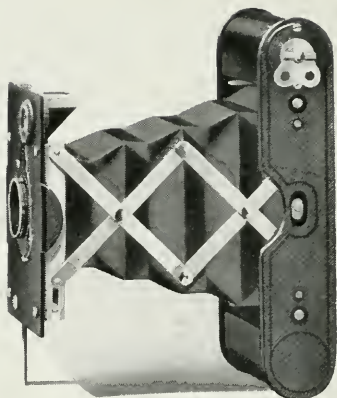
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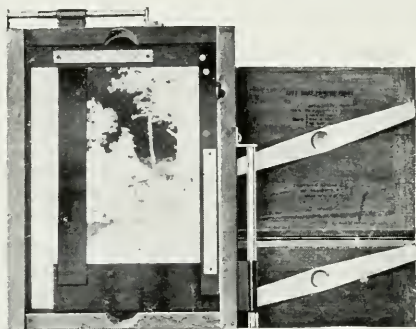
A
MAGAZINE *for* AMATEUR
PHOTOGRAPHERS



MARCH, 1917

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The newest of the Kodak helps



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A mask that may be adjusted as the amateur wills within the limits of the regular amateur sizes.

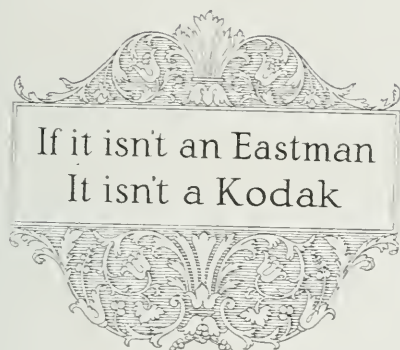
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If it isn't an Eastman
It isn't a Kodak



Good Afternoon!

Made with No. 3A Folding Brownie, by C. T. Armstrong
(stop, 8); 1-25 sec. at 4.30 P. M.

KODAKERY

A Journal for Amateur Photographers

PUBLISHED MONTHLY—YEARLY SUBSCRIPTION, 50 CENTS; SINGLE COPIES, 5 CENTS.

VOL. IV

MARCH, 1917

No. 5



Seaport Days

Made with No. 3A Folding Pocket Kodak

EVERY FAMILY ITS OWN CAMERA CLUB

“WELL, I’ve found it,” said Sanford.

“Found what?” I asked, my thoughts unconsciously reverting to the North Pole. I don’t know why—the temperature had all that frigidity so characteristic of the torrid zone.

“Found common ground for

the children and myself,” he said.

“The first thing you know,” I warned him, “I’m going to have an inkling of what you’re talking about.”

“Well, it’s like this,” Sanford explained. “The best way for a parent to really know his children is to join them in their sports.



The Day of the Hunt

Made with No. 3A Folding Pocket Kodak

They are in a receptive mood then and comradeship is possible. That's true even if I did read it in a book. Well, you have a mental picture of me out roller skating with Clara, haven't you?"

I had, and involuntarily smiled.

"And you can see me knocking up flies to Billy, can't you?"

Again I smiled.

"And, conversely, you can imagine Billy and Clara and I playing golf together, can't you?"

I laughed outright.

"You see the thing doesn't work out very well but last week I made a discovery. Billy asked me for a Brownie camera. Billy is very diplomatic sometimes. He started in by saying that he knew father wasn't a rich man but that

a Brownie didn't cost much, the price of the one he wanted was only four dollars, to be exact. That night he brought home the Brownie.

"I didn't read the paper that night. The simplicity and efficiency of that camera appealed to me and Billy and I spent the evening going over the manual. Right off the reel, so to speak, Billy and I were interested in the same thing. Heretofore that mutual enthusiasm had been confined to food. The next day we hiked it out in the country and I didn't have to talk down to Billy or he didn't have to talk up to me. We were chums—and without an effort.

"I got another Brownie for



The Baby in State

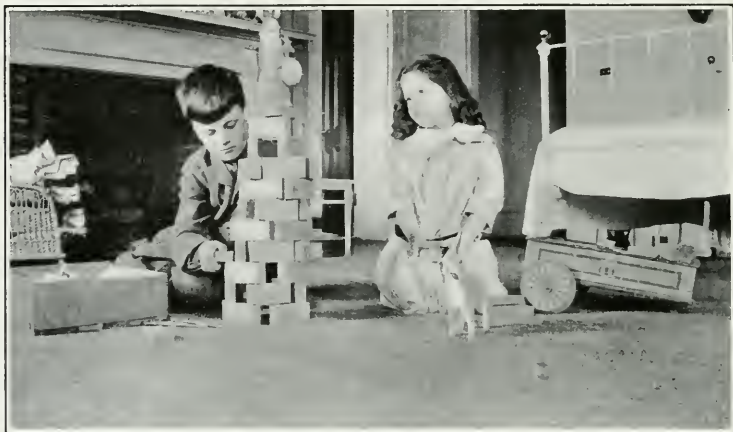
Enlarged from a Kodak Negative made by S. Izard

Clara and a Kodak for the joint use of the mater and myself and we organized the Sanford Camera Club. We're holding an exhibition up in Clara's room now.

"You know I'm just beginning to know those kids of mine. They

are both older than I thought they were and they say I am a lot younger.

"Kodaking is common pleasure ground where you and the youngsters really meet as equals. That's the secret. Every family its own camera club."



The House That Jack Built
Made with No. 1A Folding Kodak

MAKING UNEVENLY DRIED FILMS LIE FLAT

AFTER films have been developed, fixed and washed they should be dried in a gentle current of air that is free from dust.

When films are placed in a current of air in the summer-time they dry gradually and evenly and when wholly dry they will lie practically flat.

In cold climates films must be dried in heated rooms during the winter months, to prevent the water in the gelatine from freezing and ruining the negatives.

When films are dried near hot stoves or radiators, or over hot air registers, they dry very rapidly

but they do not dry evenly. Frequently both edges of the films and sections across their entire width will be "bone dry" while other parts of the films are still moist. Under these conditions the films will "buckle," as it were, in drying, and when dry will not lie flat. This difficulty can be avoided by drying the films ten feet or farther from the source of heat, and it can also be corrected after it has occurred by placing the *dry* films, say, half an inch apart, face down, on a sheet of clean paper, a few feet long, which is then rolled around an ordinary cardboard mailing tube, 1½ inches or more



City Walls of Concarneau, Brittany

Made with No. 3A Folding Kodak; *f.7.7* lens; stop, *f.22*; 1-5 sec.

in diameter, so the films will be given a backward curve, that is, a curve like the letter U, with the emulsion side of the film on the outside of the U.

If removed from the roll at the right time (usually at the end of two or three hours) they will lie as smooth and flat as a sheet of paper. If left in the roll for several hours they will retain the backward curve, but this curve can also be readily removed and

the films made perfectly flat by again placing them in the roll—other side up this time—and leaving them there about half an hour.

The writer has experimented extensively with the flattening of films that were dried under extremely unfavorable conditions, and has found that the roll will always perfectly flatten both roll films and film pack films when pressure alone would not accomplish this result.



The Prow of the Submarine
Made with a Graflex



The Port of Monte Carlo

Made with No. 3A Folding Pocket Kodak: *f*.7.7 lens; stop, 16; 1-25 sec.

GETTING CLEAR NEGATIVES

BY DR. C. E. K. MEES

DEVELOPMENT is at once the most fascinating and the most mysterious of photographic operations. Even those who have developed thousands of negatives never get tired of watching the image emerge from the film and gradually build itself into a picture as development progresses; but, if we really want to get good negatives (and it is only from good negatives that good pictures can be printed) watching the development is not by any means a good thing to do; the film is very sensitive to light—almost as sensitive when wet in the developer

as it was when dry—and unless we are perfectly sure that the dark room lamp is safe, it is unsafe to hold the film near to the lamp and watch the image appear, for this method is very apt to produce a general veil of fog over the whole negative, due to the light from the lamp affecting it while it is being developed. Indeed, it is quite possible to spoil the negative altogether and to get a film that is partly negative and partly positive by taking the film out of the developer and holding it too close to the lamp.

To obtain clear negatives that

are free from fog, the film should be kept away from the lamp while it is being developed. Remember that "a watched pot never boils" and that the film will develop just as fast and just as well if the developer is left to do its work in peace. But all these risks will be avoided if the film is developed in the tank, where development goes on in total darkness and there is no possibility of light fogging the film during development.

Apart from the dark room lamp the greatest enemy of clear negatives is a developer which has

something wrong with it, and, unfortunately, the developer is a rather delicate chemical solution and unless it is compounded properly from pure chemicals it is very liable to give trouble.

Again, if we take a tray developer and use it in a tank by simply diluting it we may also get fogged negatives because fog can easily be produced by too little sulphite, and the weaker a developer the more sulphite it requires in proportion to the other components. The tank developer powders prepared by the



Jamaica Types

Made with No. 3 Folding Pocket Kodak



A Troubled Biplane

Made with No. 3A Folding Pocket Kodak

manufacturers, or a developer made according to the formulas published by the manufacturers, should always be used for tank development.

If the developer is made up correctly and the film is correctly developed, our negatives will have clear margins. Should our pictures then prove flat and muddy and fail to show that sparkling brilliancy we desire, this will usually be due, not to development, but to the nature of the subject photographed. I remember a photographer who, a good many years ago, wrote to me complaining that all the plates we sent him were fogged, and, after puzzling over the problem for weeks, I

finally asked him what he was trying to do, and he answered that for months he had been trying to get a good picture of a London fog! If the lighting of the subject is flat, that is, if there is little contrast between the lights and shades, the negative will be flat, and the only thing to do in such a case is to keep the exposure down and develop fully so as to get as much contrast as possible.

Seashore and lake subjects in which water and sky occupy the greater part of the picture area, clouds and sky, and open landscapes that have no prominent object within, say, 75 feet of the camera, require less exposure than nearby subjects.

There is one more cause of a flat, fogged negative when the margins are clear and it is obvious that development was correct: that is light scattered from the surface of the lens all over the film.

It may be because the sun is allowed to shine in the lens when making pictures against the light (this can be avoided by shading the lens), or it may be that the lens has been allowed to get dirty and dust or finger marks on it

are scattering the light. To clean a lens, gently remove the dust, then breathe on it and wipe it with a *clean, soft linen*—not silk—handkerchief.

With a clean lens, Eastman Developer Powders, or a developer made accurately according to formula from Eastman Tested Chemicals, and a film tank, nothing is easier than to get correctly developed negatives that are clear and free from fog.



A Flying Squirrel
Made with a Graflex



An Indian
Doorway

Made with
No. 1 Kodak Junior



Venetian Reflections

Made with No. 3 Folding Kodak

KODAK FILM AT THE SOUTH POLE

KODAK film is the film that is telling the world war story; it is the film that was used by Roosevelt and others in tropical Africa; it is the film that made Peary's pictorial records in the Arctic, and it is Kodak film that was selected in hopes that, after passing through the intense heat of the tropics, it would still make perfect records in the piercing cold of the Antarctic regions.

How well Kodak film fulfilled these expectations is told in the following extract from a letter written to Mr. Blake, of Kodak, Ltd., London, by Mr. H. G. Ponting, the explorer-photographer who was a member of Captain Scott's South Polar Expedition.

Mr. Ponting's letter again confirms the statement that Kodak film is the film invariably chosen for important work.

47 OXFORD MANSION, OXFORD CIRCUS, W., NOV. 29, 1915.

E. BLAKE, ESQ., KODAK, LTD., KINGSWAY.

Dear Mr. Blake,—I really feel that I cannot say too much in praise of the film you supplied. I could scarcely have asked for anything better.

To understand fully what your films went through, you must know that there was not sufficient room in our hut to store them; they had to be left outside, where they were subjected to temperatures that fell far below zero for many months together. They took over seven months on the voyage to the Far South, and, of course, passed through the Tropics. They have, therefore, been subjected to the extremes of heat and cold.

I must further tell you that as we kept our hut at a temperature of about 50 degrees Fahr., there was often a difference of more than a hundred degrees between the interior and the exterior. This necessitated the very greatest care in the handling of photographic films and plates. I found out from experience that to take them into the hut and open them at once meant certain ruin from condensation. I, therefore, adopted the method of taking them gradually into the temperature in which they were to be developed. First, they were taken into the outer vestibule, then to the inner, thence to the coldest part of the interior and thence to the dark room. By these means the films or plates got gradually warmed up before being developed.

Of course, I took every care to avoid static electricity, but even so I think it is remarkable that I experienced no trouble of this kind whatever. There is not a mark of it on over twenty thousand feet of film exposed.

I should have liked to have shown a piece of film that was bought in England in April, 1911, sent out to me in the Antarctic, where it arrived in February, 1912. It was brought back to England by me and exposed in Switzerland in February, 1913. This film had, therefore, passed twice through the Tropics, had been to the South Polar regions and was nearly two years old when exposed. Yet it developed up perfectly and I secured some

hundreds of feet of splendid negative with it. It was quite as quick as the fresh film that I had with me.

Perhaps, however, the most interesting thing that I can tell you about your products, is in regard to your Kodak films, of which I took a large quantity South. They worked perfectly and were found to be so reliable that, on account of the necessity of saving weight, they were taken to the South Pole by Captain Scott instead of the Seed Plates which it had been arranged originally to take.

These films were bought in England in 1910 (May). They arrived in the Antarctic in January, 1911. Some of them were taken to the South Pole, and were there exposed on January 17, 1912. These exposed films were brought back by Captain Scott to the last camping place where my late chief and his two remaining comrades of the Polar party lost their lives in a terrible blizzard which raged for nine days.

These films lay beside their dead bodies for eight months before the search party, on account of the months of darkness, were able to reach the spot. They were then discovered and brought back to the winter quarters hut, where they were developed in January, 1913. The films had, therefore, passed through the Tropics, through one Antarctic winter buried in the snow and had lain through another winter in temperatures which must have fallen 80 degrees below zero, before development and after exposure; and they were two and one-half years old. I have these negatives now. They must, beyond all question, be the most remarkable negatives in the world. Without them we should never have actually seen how Captain Scott and his companions looked when at the uttermost extremity of the earth, nor what they found there; the tent of the Norwegian Amundsen, who reached this goal just a month earlier.

With kindest regards and best wishes,

I am, sincerely yours,

Signed: H. G. PONTING.



A Halt for Refreshments

Made with No. 3A Folding Kodak, by L. S. Crosby



THE MAGIC OF S

PICTORIAL ADVENTURES WITH

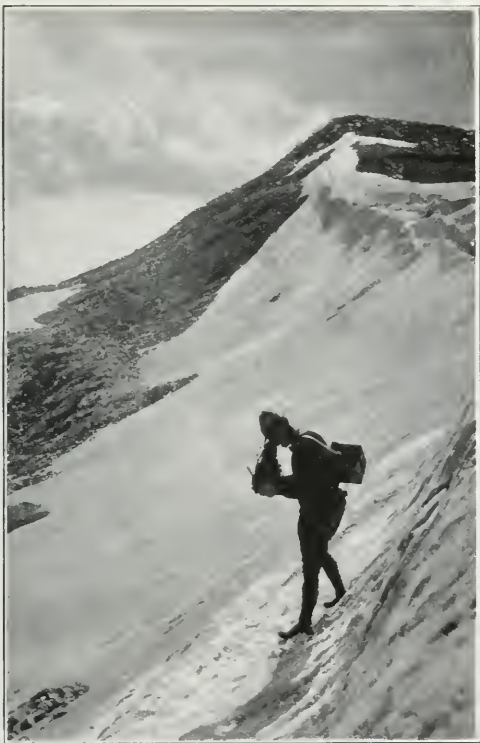
THE KODAK

AL

GRAFTON



W AND ICE





A Winter's Afternoon

Made with No. 3A Folding Pocket Kodak

MORE ABOUT BUBBLES IN LENSES

GLASS is made by melting sand and alkali together, sometimes with the addition of other substances, such as lead or barium.

The making of glass for optical purposes requires the greatest care and only the purest constituents can be used; the sand must be perfectly white and especially free from any trace of iron, and the melting is done in fire-clay pots, the making of which is an art in itself.

For many years all the kinds

of optical glasses made were of a similar type, and from these glasses no lenses could be made that would give sharp images on all parts of a flat field (such as the surface of a film or plate) and also be achromatic, that is, focus the blue and yellow rays found in white light, at the same point.

Since it is essential to have achromatic lenses for photography the lenses that were made from these older types of optical glasses were made achromatic, but as they could not also be made to give

sharp images on a flat field the photographs taken with them were not so sharp at the edges as they were in the center. As a result of a long series of experiments Professor Abbe and Mr. Schott succeeded in manufacturing new kinds of optical glasses from which it was possible to make lenses that, while they retained the property of focusing the blue and yellow rays at the same point, also gave a flat field image, so that the image projected by these lenses could be recorded on a flat film or plate, with uniform sharpness, up to the very margins of the picture area. It is from these new optical glasses that modern anastigmat lenses are made, and the superior definition of the anastigmats is, therefore,

primarily due to the new glasses which have become available.

Owing to the very rigid demands made on the glass makers by the opticians the manufacture of these glasses presents very great technical difficulties. The glass maker has so little latitude in the preparation of his mixture that he is not able to adjust it so as to get a mixture which can be stirred easily in the furnace, and most of the new glasses are very viscous and difficult to stir. When the glass is melted it is not very fluid—white hot glass being about the consistency of molasses.

When a large pot of this viscous, semi-fluid glass is stirred in order to mix the constituents, the stirring implement is certain to drag air in



A Souvenir of Summer

Made with No. 3 Folding Pocket Kodak

with it when it is introduced in the mixture. If the glass can be heated until it is thin the air bubbles will be able to rise to the surface and escape, but with the new glasses this cannot be done without impairing their optical properties. The mixture must be allowed to remain very viscous while it is being stirred, and has to be handled with great care, consequently the makers have not been able to get rid of bubbles completely, so in the very kinds of glass which are of the greatest importance to the maker of anastigmat lenses we find small air bells, and the makers state that it is not possible to supply the glass without these air-bells.

Now there are defects in glass which are serious in the manufacture of lenses. It is very important, for instance, that the glass should

be free from strain, and it must especially be free from many streaks of inhomogeneity (lack of uniform consistency in the mass) due to insufficient stirring, but these small air-bells are of no practical disadvantage whatever and the only objection to them is that they impair the appearance of a lens. On looking through a lens containing them they will appear as little disks, which prevent an infinitesimal fraction of the light from passing through the lens, but they have no other effect.

It will, therefore, be understood that while the presence of small bubbles in the glass used for making anastigmat lenses is at present an unavoidable consequence of the limitations attaching to the manufacture of the glass which is needed for making the highest grade of lenses, it in no way affects the performance of the lens. The

manufacturers of lenses appreciate that air-bells impair the appearance of a lens but they know they are unavoidable and harmless and consider that the great advantages possessed by the lenses which can be made from the glasses containing them more than compensate for their presence.



Made with a Vest Pocket Kodak



Copyright, 1916, by J. C. Haberstroh

Elk in Yellowstone National Park

Made with No. 3A Special Kodak, by J. C. Haberstroh. Bright sun at 2 P. M.
in February; *f*.11; 1-50 sec.

PHOTOGRAPHING GAME IN YELLOWSTONE NATIONAL PARK

ONE of the most interesting developments of recent years is the extent to which hunting with the camera has taken the place of hunting with the gun. If we may accept the sentiments of audiences as reflecting modern feeling in the matter, screen pictures of camera hunts give greater satisfaction and win greater applause than pictures of hunts that end in real calamity to the hunted.

The profitable popularity of camera hunting gives special significance to the following extracts from a letter written by a camera huntsman who "delivers the goods." Yellowstone National Park, whose denizens Mr. Haberstroh describes and records, is recognized as probably the greatest natural game preserve in the world.

EDITOR KODAKERY,

Dear Sir,—In reply to your letter of April 21st, will say, it is quite easy to photograph the game in Yellowstone Park if one has

patience and approaches the game carefully. Years of protection have made the animals quite gentle—especially in winter. The deep snow in the mountains compels

them to seek the foothills and valleys for food. The Government maintains a feeding station at Gardiner, Mont., and during the most severe weather distributes hay on the flat at Gardiner and along the road from Gardiner to Mammoth Hot Springs, a distance of about five miles.

The game stays on the surrounding hills and when the hay is passed out they come down and feed. Of course, there is not enough to feed the large number that stays around, but it helps, and with the rustling they do it keeps them from starving.

If you walk up to the game quietly and take your time, it is

possible to get within twenty-five feet in some instances. The elk were the only ones that would not permit this. When they saw me coming they would run about one hundred yards and stop to see if I was following. When I continued to follow, off they would go, then stop again at such a distance that they would be too small in the picture. If one had about a week's time to stay at Gardiner and go out each day, some stalking might be done working up-wind or selecting one of the routes they travel around the hills, providing the wind was favorable, then, when they came along, snap them.



Copyright, 1916, by J. C. Haberstroh

White-Tailed Deer

Made with No. 3A Special Kodak, by J. C. Haberstroh. Bright sun at 3 P. M.
in February; *f.11*; 1-50 sec.



An Elk Portrait

Made with No. 3A Special Kodak, by J. C. Haberstroh. Bright sunlight
at 4 P. M. in February; *f*.8; 1-50 second

I secured my elk pictures (except one) by riding along the road in a bob-sled—snapped them from the sled as we went by. They did not mind the team at all but the instant I stepped from the sled they were off.

In this band was a six-point head. He was lying down and not close enough to show to advantage. Decided to make a run for him, thinking I might get close enough before he could get up. Set the shutter for $\frac{1}{200}$ and stop at *f.6.3*, then jumped out. No more than struck the ground before he was up and off, with the rest of the bunch following suit.

Switched the shutter back to $\frac{1}{50}$ and stop *f.11* while on the run, thinking it would enlarge better—a $\frac{1}{50}$ second exposure is usually fast enough to stop movement at that distance—about 65 yards.

For most game pictures where there is not much movement, $\frac{1}{50}$ second and stop *f.11* with bright sun between ten and three o'clock will produce a good negative. At times we have to take the picture partly against the sun and it is just as well to give enough exposure, if the animals are not moving rapidly. If the game is running, and quite close at hand, and you want to take it, use $\frac{1}{200}$ second with stop *f.6.3* to stop

movement, but with this exposure you must have bright sun.

If you cannot get exact focus, set at 100 feet and you will obtain everything sharp from about 25 feet to infinity, when using stop *f.11* or stop 16 on a 3A Kodak.

While I secured good results with a Kodak will say that anyone fortunate enough to possess a Graflex with a very long focus lens has the ideal equipment for taking game pictures.

With a Graflex all one has to do is look in the focusing hood and turn the knob that racks out the lens—one can be approaching the subjects and focusing at the same time. The instant the image is sharp on the ground glass the exposure can be made by pressing the lever.

One should have plenty of film, for often after taking a picture the animals may move to more favorable positions and may form more pleasing groups.

While there is no fence around the park the game knows where the park line is. In the summer it naturally roams over the mountains and gets outside of the park.

When the hunting season opens in the fall and you shoot at any game near the park line, it makes a bee-line for the park. I have hunted along the border of the park and must say it is annoying

to make a poor shot and see the game legging it to the park. Some of their summer and fall range is outside of the park. Guess that is the only reason they do come out.

A hunter told me one time that he shot at a six-point bull near the line and missed. The elk ran over the line, stopped, and laughed at him.

Where the line runs through

the forest the trees are blazed, and signs tacked up at various distances notify one it is the park boundary.

It certainly is a great sight to see the game in the park. Taking pictures of them is about as exciting as pursuing them with intent to kill.

Signed,

JOHN HABERSTROH.



SOLVING PHOTOGRAPHIC PROBLEMS

A THING that is worth the doing is worth doing well. When we make pictures we should try to make the best pictures we are able to produce.

The more experience we possess in picture making the surer we are of obtaining the results we seek.

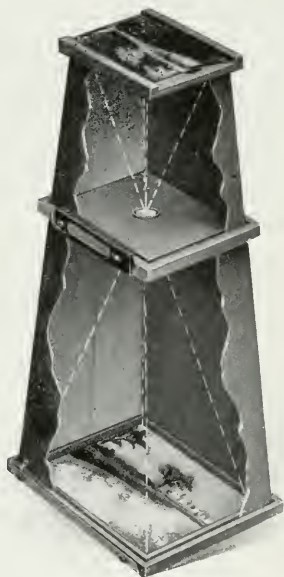
Experience is a competent teacher, but experience teaches slowly. The most economical and most rapid way of learning is by profiting from the experience gained by others. We have available the knowledge that scientists and practical workers have acquired from many years of experience in photographic work.

If you care to profit from this knowledge submit your photographic problems to us. We will take pleasure in assisting you.

If you wish us to criticise your negatives and prints be sure to send the negatives with the prints. Give all the data you can furnish. We can offer the most comprehensive criticisms when we know the month, the time of day, the light conditions that existed and the stop and shutter speed used when the exposure was made. We also wish to know the name and grade of paper on which each print was made. Negatives and prints will, of course, be promptly returned.

These services will be rendered free of charge.

ADDRESS ALL COMMUNICATIONS,
"KODAKERY," CANADIAN KODAK CO., LIMITED,
TORONTO, CANADA



Brownie Enlarging Camera

It's as easy to make enlargements with this instrument as it is to make pictures with a Kodak.

THE PRICE.

V. P. Kodak Enlarging Camera, for $3\frac{1}{4} \times 5\frac{1}{2}$ enlargements from $1\frac{1}{8} \times 2\frac{1}{2}$ negatives,	\$1.75
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Electric current is required for the operation of this instrument.

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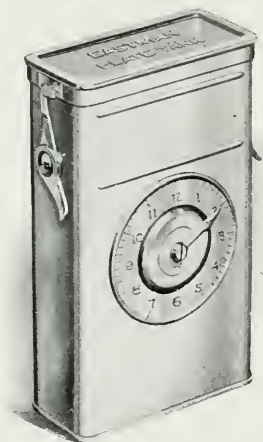
Brownie Enlarging Camera Illuminator, - - - \$3.50

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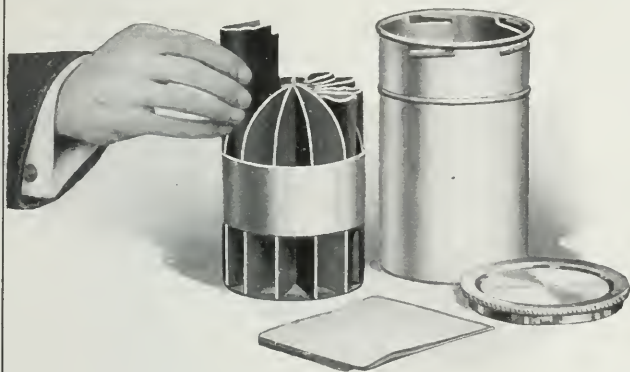
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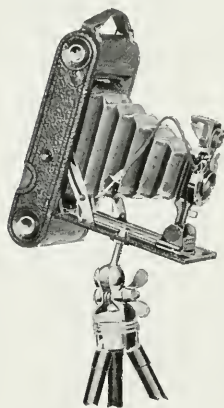
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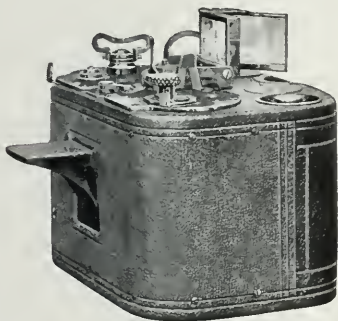
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Prints by daylight

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A photographic paper made
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This is the actual size of the

Vest Pocket Autographic Kodak

Small enough, as you see, to slip in pocket, hand bag or muff and yet big enough, as the resulting pictures will prove, to tell the story in a clean-cut, convincing fashion.

Mechanically as right as a watch — photographically as capable as any camera.

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Vest Pocket Autographic Kodak, meniscus achromatic lens and Kodak Ball Bearing shutter, - - - - -	\$ 7.00
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A
MAGAZINE *for* AMATEUR
PHOTOGRAPHERS



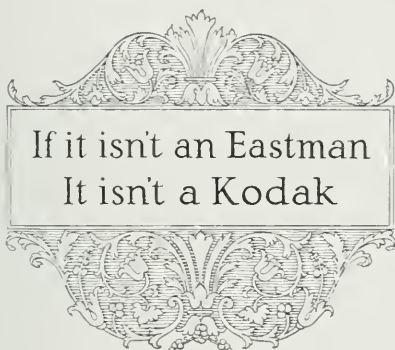
APRIL 1917

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If it isn't an Eastman
It isn't a Kodak



A Festival in the Land of Nippon

KODAKERY

A Journal for Amateur Photographers

PUBLISHED MONTHLY—YEARLY SUBSCRIPTION, 50 CENTS; SINGLE COPIES, 5 CENTS.

VOL. IV

APRIL, 1917

No. 6



Taken with 3A Kodak and Portrait Attachment

INCREASING THE SIZE OF THE PICTURE

AMONG the great army of Kodak enthusiasts, a very small proportion, relatively speaking, ever attempt to make enlargements from their pictures. In the case of the larger Kodaks, the prints are of such size that they are satisfying to the eye,

though often excellent pictures of far greater interest and beauty can be made by enlarging a portion only of the original negative. On the other hand small pictures, such as those made with the Vest Pocket Kodak and No. 1 Kodak Junior,



The Quay

can be more fully appreciated when enlargements have been made from them. Many amateurs have been deterred from making such enlargements because they thought it was beyond their ability, but this is not by any means the case.

The most simple means to obtain enlargements is by use of the series of Brownie Enlarging Cameras, where the operations are reduced to placing the negative at one end and the Bromide Paper (or Velox) in the holder at the opposite end. The very

nature of these box form enlargers precludes their use for other than standard sized enlargements from standard sized negatives—usually about two diameters, i.e., each linear dimension of the resulting picture is double that of the original. When it is wished to enlarge a portion of the negative only, a different system must be resorted to.

It may not be generally realized, but the Kodak itself, if of the folding type (with the exception of the Vest Pocket Kodak



English Woodland



French Fishing Fleet

and the old model No. 1 and 1A Folding Pocket Kodaks) is eminently suited, with slight adaptation, to enlarging. It is simply necessary to remove the back and fasten the instrument by means of rubber bands to a wooden frame arranged to support the negative placed between glasses about two inches further from the lens than the film rollers. The dull side of the film must face the lens. A room will be required capable of being made wholly dark, Kodak and frame being fastened over a hole cut in the window shutter. Outside the window which should preferably face to the north, a piece of white card is placed at an angle of 45 degrees, to reflect

the light from the sky through the negative.

If we now put a piece of white paper on the bottom of a box and stand the latter on end facing the lens of the Kodak, the shutter of which has been set to "Time," and the diaphragm opened to full aperture, an enlarged picture will be thrown on the paper, the degree of enlargement depending on the separation between (1) lens and negative and (2) lens and easel. Sharp focus is secured by moving the lens or easel back and forth, taking care that the easel is parallel with the negative.

All that is now necessary is to cover the lens, pin a piece of Bromide paper on the easel and



A Mountain Lake

again open the lens for the requisite length of time. The length of exposure will be governed by many factors, so that no accurate time can be given, but a little experience will soon show what is required.

The foregoing equipment may appear complicated, but it is far

from being so, and every part can easily be made by almost any amateur. For those desirous of more explicit instructions, we recommend that a copy of "Bromide Enlarging with a Kodak" be obtained from the nearest Kodak Dealer, or direct from us on request.



PINHOLES

SMALL irregular shaped transparent spots in negatives are known as pinholes. These are usually caused by particles of dust resting on the film during development.

When the negatives are de-

veloped in the tray dust from the dark room may settle on them while they are being handled before development begins. This, of course, could not occur in the tank development of roll film unless there was dust on the apron or in

the changing box, which was stirred up while the film was being reeled around the apron.

A frequent cause of pinholes is dust in the camera. To guard against this the inside of the camera should be examined frequently and all dust removed with a small soft brush, like a camel-hair duster. By holding the camera with the lens pointing upward, the fine dust that lodges in the corners can readily be blown out. The bellows of folding cameras should be fully extended and then, by gently tapping the bellows with the finger any dust that may be inside can usually be dislodged.

The inside of the camera should

never be washed, or wiped with any dust-absorbing preparation. Washing will injure the bellows of folding cameras and may affect the matte black varnish in fixed focus cameras, while dust absorbers deposit oil or other substances that will do more harm than good.

Keep the inside of your camera clean and your developing room free from dust and your negatives will be free from pinholes.

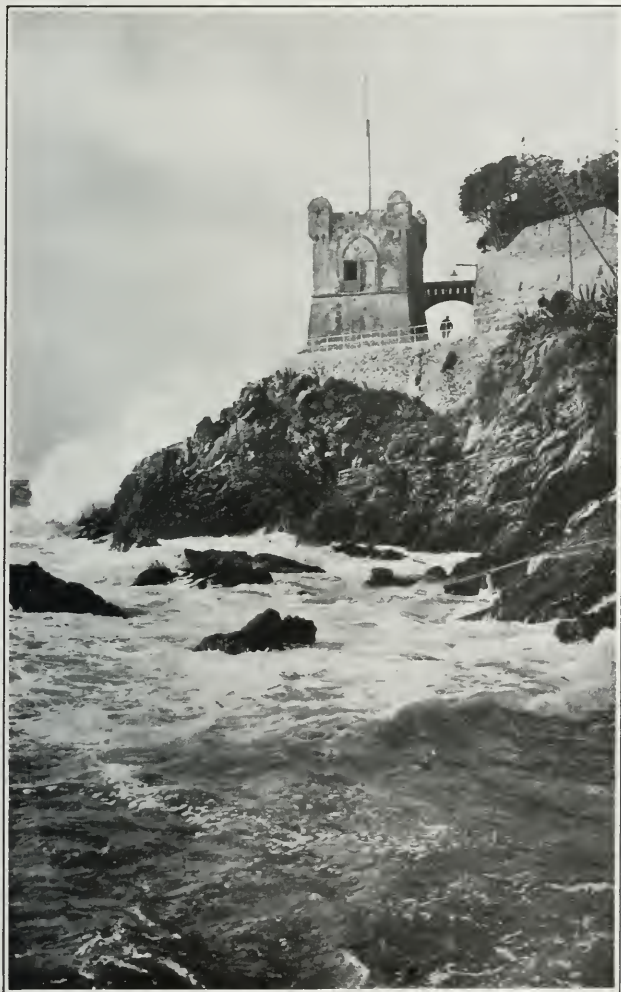


The picture can often be improved by a liberal trimming of the print.



Gossip

Made with No. 1A Folding Kodak



Marine Watch Tower Near Genoa, Italy

Made with No. 3A Folding Kodak; $f.7.7$ lens; stop, $f.16$; $1\text{--}25$ sec.



Fig. 1.—Showing Correctly Printed and Correctly Developed Print.

VELOX PENCIL SKETCHES

A WELL executed pencil sketch has a charm that is all its own, there is nothing else quite like it, but to draw a good free-hand sketch requires skill that few possess. Absolute accuracy of delineation in free-hand drawing is, of course, impossible.

To make a good photograph requires no skill in drawing, and the drawing, being done by the lens of the camera, is accurate.

If we could transform a photograph into a pencil sketch by tracing over the lens-drawn lines of the photograph and then com-

pletely remove the photographic image without removing the pencil lines we should obtain a sketch with drawing that is correct.

In the drawing of such sketches we could also omit or add details, lighten or darken parts for placing emphasis on the objects of interest and for balancing the composition.

Now, such sketches can easily be made by practically every one who knows how to make Velox prints. Any grade of Velox paper, excepting glossy, can be used, but the best results can be obtained on Special Carbon



Fig. 2.—Showing over-printed and under-developed print on which drawing is to be done.

Velox, which has a surface texture that takes the pencil most freely and which gives the finished sketch a more pleasing appearance than a smoother surface paper would bestow.

From the negative of the subject you desire to make a sketch of make a print on Special Carbon Velox, through a mask, so it will have an ample white margin on all sides. For a $3\frac{1}{4} \times 5\frac{1}{2}$ negative, for instance, use a sheet of 5×7 paper. For this work the special instead of the regular grade of Velox should always be used, no matter what the character of the negative may be,

because a print with the least possible contrast is needed.

The print should be *slightly* over-printed, so all the detail will quickly appear in development, and then be considerably under-developed—development to be stopped as soon as all the detail is visible, then the print rinsed in water and quickly placed in a fresh, clean acid fixing bath. Since Special Velox requires from 25 to 35 seconds for complete development the print should be so printed that all the detail will be visible at the end of not more than 10 seconds development.

After the print is fixed, washed



Fig. 3.—Showing print like Fig. 2 with drawing added, and photographic image not yet removed.

and dried in the usual way, the drawing can be done. A No. 3 H lead pencil should be used for the fine lines and a No. 3 B for the heavy lines and the broad shadows. The best grades of pencils will work more smoothly than the cheaper grades.

After the lines are traced the print is immersed in the following bath:

Hot Water 10 ounces
 Potassium Iodide . 30 grains
 Iodine 3 grains

The chemicals must be dissolved in the order stated and the water must be very hot, as Iodine dissolves very slowly in cold

water. Its solution can be hastened by grinding it, when it is in the water, with a stirring rod. Allow the solution to cool before using. This bath keeps well and can be used until exhausted.

The print should be left in the bath until *all* of the image has turned blue-black (this usually takes from 3 to 5 minutes) otherwise part of the photograph will show under the pencil lines in the finished sketch. It is then placed in a fresh acid fixing bath where it will rapidly become clear, and after it is wholly clear nothing but the pencil sketch will be left on the paper—the photo-



Fig. 4.—Showing finished pencil sketch after photographic image has been removed.

graph having totally disappeared. It should be left in this last fixing bath from 20 to 30 minutes, then washed in running water for an hour, or given 12 changes of water in a tray at intervals of 5 minutes. After it is dry the finishing touches can be made with the pencil. Any pencil marks not desired in the sketch can be removed with a sharp-edged rubber eraser and any soiled parts of the sketch can be cleaned with art gum, which stationers furnish.

The method we have described is simplicity itself. The results of the method are shown by our illustrations.

Fig. 1 shows a correctly printed and correctly developed photographic print. Fig. 2 shows the over-printed and under-developed print on which the drawing is to be done. Fig. 3, which was an exact duplicate of Fig. 2 before the pencil tracing was done, shows the appearance of a pencil sketch over a photographic image.

Fig. 4 shows the finished pencil sketch after the photographic image has been wholly removed from underneath the sketch.

By comparing the original photograph (Fig. 1) with the finished sketch (Fig. 4) it will be seen that the trees and the forest beyond



Straight print from negative from which sketches on
opposite page were made

Made with No. 3A Special Kodak, by W. P. Griffin.

them were made less conspicuous in the sketch than they are in the photograph and that the clouds, added by the pencil to Fig. 4, enhance the appearance of the picture, while emphasis is laid on the boat (by making it the most conspicuous object), for it is the boat that is the principal object of interest to which all other objects should be, and, in our sketch are, made secondary.

Little technical skill in drawing is needed in converting a Velox print into a Velox pencil sketch, yet there is abundant op-

portunity for the application of a special gift for drawing, since the sketch may be as greatly varied from the basic print as the guider of the pencil may choose. Any sort of line drawing is necessarily a study in "leaving out," and the kind of line used in expressing a shaded part is naturally a matter for individual taste and judgment.

The facility with which pencil lines can be erased, with rubber and art gum, permits a wide range of experimental sketching on the print.



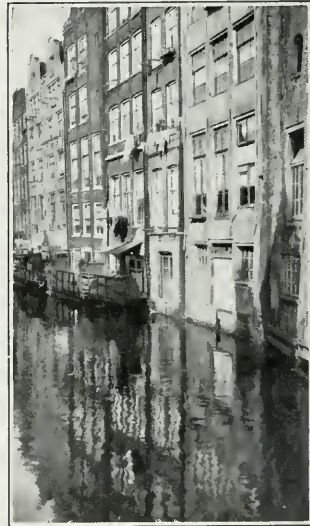
Two Sketches made from same negative as photograph
on opposite page

WATERWAYS

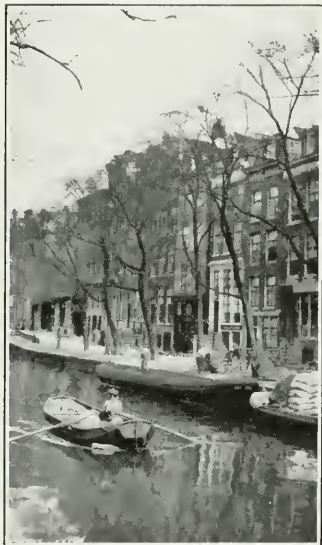
AS VISITED BY
THE KODAK



The First Automobile on a Southern Island



On the right,
A Canal in
Old Amsterdam



A Holland Canal



A Scottish Brook

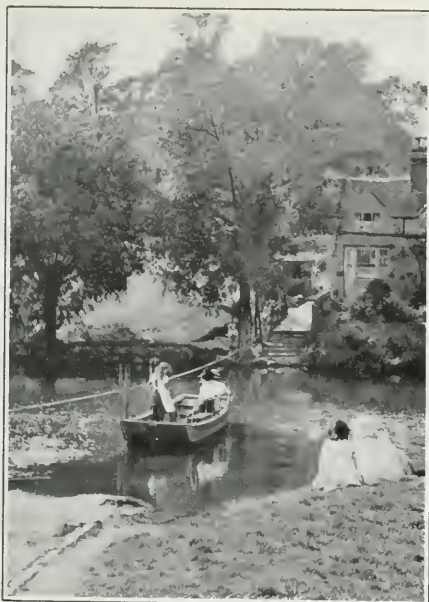
IN MANY LANDS



An American Brook



A Norwegian Inlet



A Cornwall Ferry



A Venetian Canal

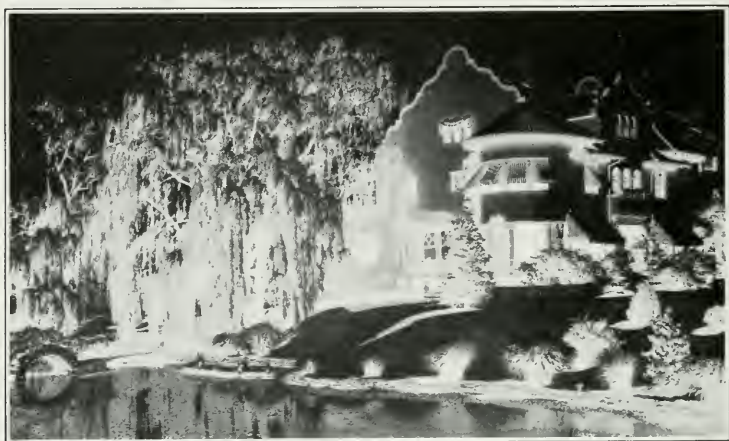


Fig. 1

WHEN TO STOP DEVELOPMENT

BY DR. C. E. K. MEES

WHEN we develop our exposed films we are faced with the problem of deciding when development is completed. If a film is left in the developer too long it will be over-developed. An over-developed film is too dense and takes a long time to print, and unless an over-developed film was considerably over-exposed it will be too contrasty; that is, the high-lights will be too dense in comparison with the shadows. A print from such a negative will lack soft gradations of light and shade unless it is printed on the softest grades of paper. The appearance of an over-developed film is shown in Fig. 1, while a

correctly-developed film is shown in Fig. 2. On the other hand, if the film is not developed long enough, it will be too thin, lacking in contrast, as shown in Fig. 3. To provide for these errors in development hard or contrasty papers are made for printing from flat negatives that lack contrast, but the best results will always be obtained from a film which is correctly developed.

It would be convenient if the maker could make the film so that it was not possible to over-develop it, but this is not practicable. It would be possible if a film developed at an even rate and then stopped developing when it was

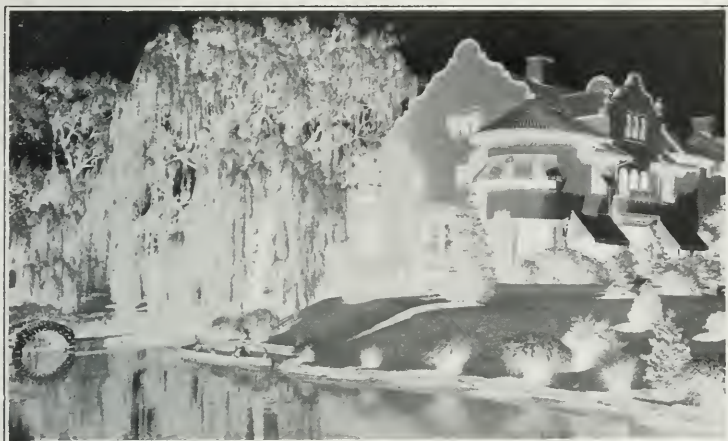


Fig. 2

correctly developed, as shown in Fig. 4, where development is supposed to go straight on for a given time and then stop alto-

gether, the film after that time not changing. But the film does not develop like this; the growth of the image gets slower as time



Fig. 3

goes on, but it takes a very long time indeed to stop completely, so that the growth of the image occurs as shown in Fig. 5. If a film was made so that we had to develop it as far as we could, it would take too long to develop and, therefore, it is necessary to make a film that is capable of giving more density than is required in order that it may be developed in a sufficiently short time; this means that we must be able to stop development at the right time to get enough density and contrast, the density being the blackness of the image and the contrast the difference between the blackest and the clear parts of the film.

Old-time photographers used to take great pride in the accuracy with which they could judge

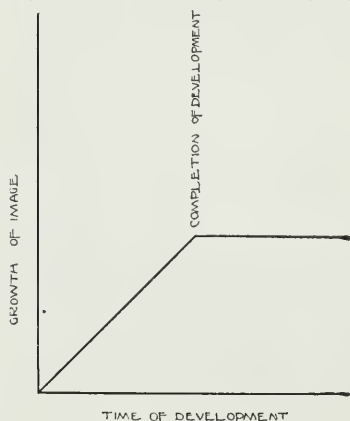


Fig. 4

the progress of the development of negatives, and it was regarded as quite wrong when, in recent years, people insisted that you could develop negatives just as well by timing the development as you could by watching it, and that it was better for the negatives not to be watched.

The customary way of judging the progress of development in a negative is to hold it up to the lamp and look through it, but unless you have a lot of experience you are very likely to be deceived because the apparent density of the negative held up to the light is very difficult to judge. The emulsion which has not been developed makes it appear stronger than it really is and beginners almost always under-develop negatives if they try to judge when to stop development. If for some reason it is necessary to judge the progress of development by inspection (and this applies particularly to lantern slides), the best way is to turn the emulsion side to the light and look through from the back. This is much less misleading than if they are examined from the front. There is no doubt, however, that the best method of developing is simply to develop for a fixed time.

Films are best developed in a film tank, and the time of develop-

ment, at a temperature of 65° for the tank developer, is 20 minutes. This time depends, as stated, *on the temperature*. If the temperature is lower than 65° the time must be increased, and if it is higher than 65° the time must be reduced. The length of time film should be developed at different temperatures in a Kodak or Premo film tank is stated in the instructions that are furnished with each tank. It might be thought that if the film was over-exposed and so gave density easily it should be developed for a shorter time than if it had received less exposure, but this idea is quite wrong, because, what one wants in a negative is not correct density, which only affects the time of printing, but correct *contrast*, which determines the quality of the print, and the contrast is controlled by the time of development. An over-exposed film will tend to have too little contrast and if the development is lessened the contrast will be still further reduced and the negative will be flat. On the other

hand, an under-exposed film tends to be too contrasty, and must not be forced in development or it may be unprintable, and so, whatever the exposure, the best result will be obtained by the use of the normal time of development. Of course, the *best* negative can only be obtained by correct exposure as

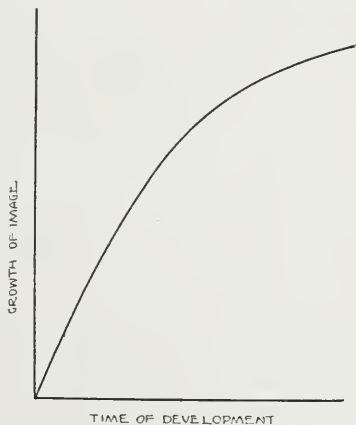


Fig. 5

well as correct development, but it is a mistake to think that we can correct errors in exposure by changing the time of development.

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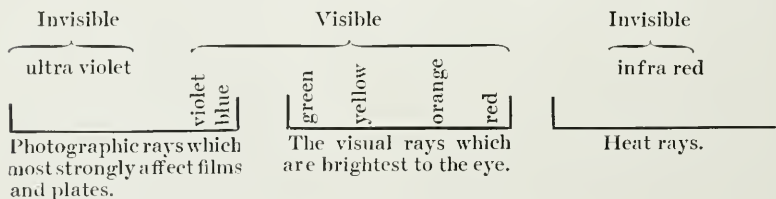
THE FUNCTION OF COLOR FILTERS

THE daylight that illuminates the earth, on cloudy as well as on sunny days, comes from the sun. The light of the sun is known as white light. White light contains all colors. When a ray of white light is passed through a prism the light is bent, and as the colors are bent to different extents they are separated and some of them become visible. The colors we can then readily distinguish are violet, blue, green, yellow, orange and red.

In addition to these, sunlight also contains kinds of rays that are ordinarily invisible, but some of which can, with special apparatus, be made visible. These are known as the ultra violet and the infra red. The infra red, being heat rays, are of no importance in photography, but the ultra violet, which are light rays, are of very great importance.

The colors of which white light is composed appear in the order shown in the diagram.

While all the colors pass through the lens and reach the plate when we make an exposure by daylight, if no filter is used, and while the plate would, if exposed long enough, be affected by all these colors, the plate is so much more strongly affected by blue, violet and ultra violet that these latter colors impress the image of the subject on the plate long before the other colors can affect it, and, were we to expose the plate long enough for the other colors also to affect it the negative would be ruined through excessive over-exposure. This means that when we make a negative on an ordinary plate of a subject illuminated by daylight, the image we obtain in the negative was made almost solely by the blue, violet and ultra violet, and this is why, when we use an ordinary plate and photograph a landscape above which is a blue sky with white clouds, and expose long enough for recording detail in a



nearby object, both clouds and sky appear white in the print.

In order to overcome this and make blue photograph darker than white we must use a film or plate that is affected by green and yellow *at the same time* it is being affected by blue, violet and ultra violet. Eastman film, being orthochromatic (corrected for color), is affected at the same time by these colors, but, since all films and all plates, no matter how highly they may be corrected for color, still remain most sensitive to blue, violet and ultra violet these colors will affect them much more strongly than the other colors can unless we subdue these colors by using a suitable orthochromatic filter, through which the light must pass before it reaches the film or plate.

The function of an orthochromatic filter is, therefore, to prevent part of the blue and violet from passing through it, thus more nearly equalizing the effect the various colors have on the film or plate during the period of exposure.

Since the orthochromatic filter prevents part of the blue and violet from passing through, it cuts out part of the light that would affect the film or plate if no filter was used, and, consequently, it increases the exposure

that must be given. The increase of exposure required depends on how much of the blue and violet the filter cuts out and also on how sensitive the film or plate is to the light which the filter lets through.

If we had a film, for instance, which had its sensitiveness in two equal portions, half the total sensitiveness being to the green, yellow, orange and red and half to the blue and violet, then, if we used a filter which cut out all the blue and violet but allowed all the green, yellow, orange and red to pass through, the exposure with the filter would be only twice that needed without the filter, but, if the sensitiveness of the film was only $\frac{1}{2}$ to the green, yellow, orange and red and $\frac{1}{4}$ to the blue and violet the exposure with a filter that cut out all the blue and violet but passed all the green, yellow, orange and red would be five times that needed without the filter.

It is not desirable to make film strongly sensitive to red because if it was it would be too slow for present day requirements in snapshot work, even when no filter was used, and it would be very difficult to handle in the dark room. Tank development by daylight would be impossible. It would be fogged by even a

very weak red light; none but an experienced photographer could judge the density of the negative during development before the extremely dim special green safelight needed for tray development and, after tank development the film would have to be transferred to the fixing bath in a light-tight dark room and precaution taken against light reaching the film for some time after it was placed in the fixing bath.

From the foregoing it is evident that calling a filter a three-times or a five-times filter means practically nothing unless the conditions under which the filter is to be used are stated.

When the Kodak Color Filter is used with Kodak film and full detail is to be recorded in nearby objects, such as flowers photographed at short range, or dark colored landscape objects that are, say, less than 200 feet from the camera, the exposure should be ten times as long as it should be if the filter was not used, but when the best rendering of white clouds in a blue sky is preferred to the recording of detail in nearby objects only about three times as long an exposure need be given through the Kodak Color Filter as should be given without the filter.

Next month we will discuss Filter Factors.



Sunshine

Made with No. 1 Brownie

FOR THE ASSISTANCE OF OUR READERS

SINCE you first began making pictures you surely have found that as you have become more proficient you have become more particular about the quality of your work, and that pictures which you once thought perfect seem less so in the light of acquired knowledge. Do you know why they now do not wholly please you? If not it is due to the fact you have learned how to detect mistakes but have not yet learned how to wholly avoid or correct them.

Do you wish us to help you? Would you care to have us criticise your photographs? If so, send us the prints, together with the negatives from which they were made, stating the name of the camera, the name and grade of the paper used for making the prints, whether the negatives were developed in the tank or in the tray, the time of day, the date and the light conditions prevailing when the exposure was made, the stop used and the exposure given; then we will gladly write you our opinion and will try to assist you in becoming more proficient in your work. The negatives and prints will be promptly returned and any assistance we may be able to render will be offered *free of charge*.

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TORONTO, CAN.

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blue photographs light—yellow pho-
tographs dark.

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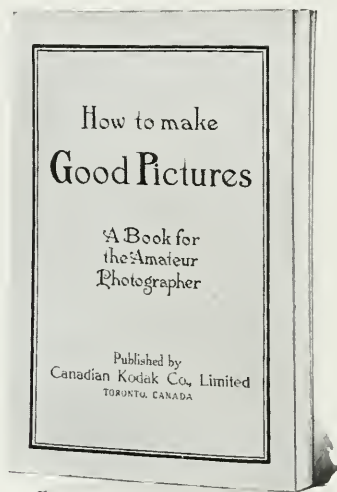
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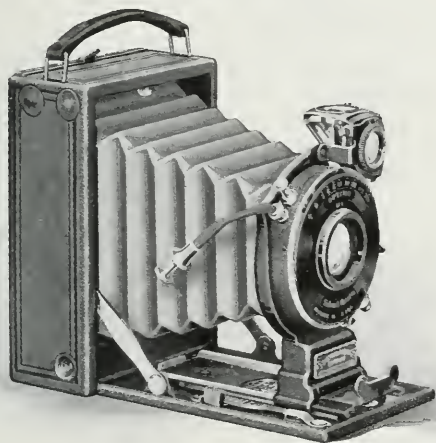
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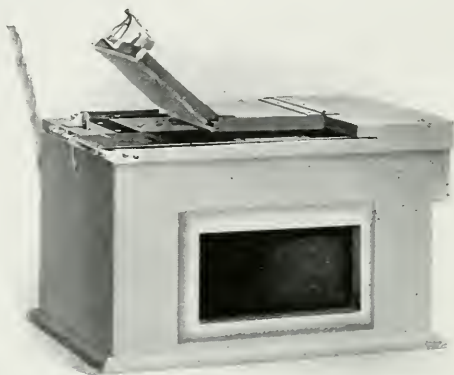
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The convenience and efficiency of the Kodak Amateur Printer emphasize the pleasures of picture-making—a delightful phase of photography is made all the more delightful with this up-to-the-minute outfit as a printing ally.

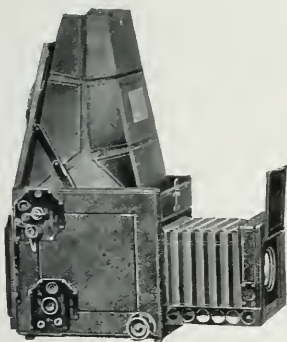
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Kodak Amateur Printer, - - - \$6.00

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The Telescopic Revolving Back Graflex.



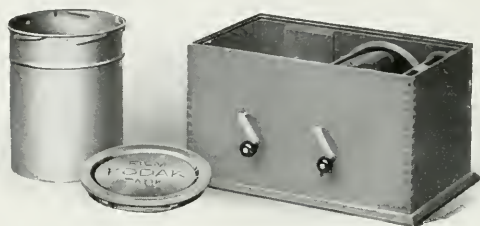
This camera is made in two sizes $3\frac{1}{4} \times 4\frac{1}{4}$ and 4×5 . It will make negatives on Eastman Graflex Film, Glass Plates or Film Packs. The bellows extension is sufficient to accommodate lenses having the focal length necessary to give a large image at a considerable distance from the subject.

The reflecting mirror and focusing screen show the image right side up, the size it will appear in the finished picture, up to the instant of exposure.

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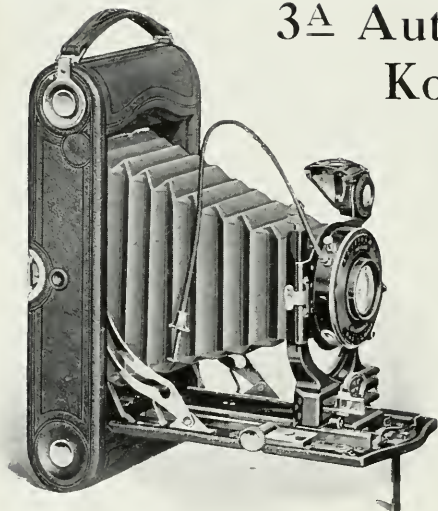
A simple working paper, *right* for every amateur requirement.

With three degrees of contrast, six grades and a variety of surfaces to choose from, you need go no further than Velox to best fit every negative.

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3A Autographic Kodak, Special



*pictures,
post card size.*

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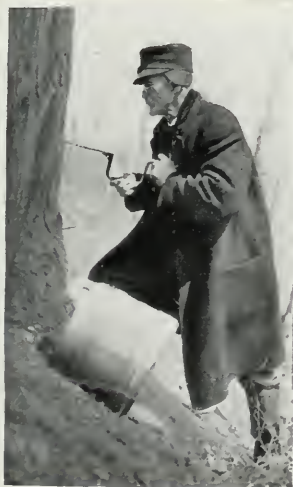
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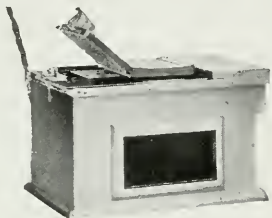
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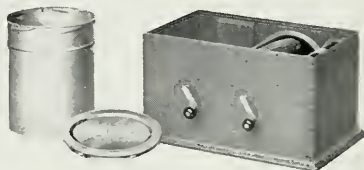
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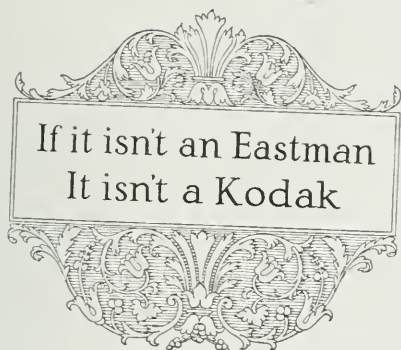
The combination of the

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finishing department.

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If it isn't an Eastman
It isn't a Kodak



Street in Old Brittany, France

Made with No. 3A Folding Kodak; $f.7.7$ lens; stop, 16; 1-5 sec., with tripod



PUBLISHED MONTHLY—YEARLY SUBSCRIPTION, 50 CENTS; SINGLE COPIES, 5 CENTS

VOL. IV

MAY, 1917

No. 7

THE KODAK AND THE FLIGHT SPIRIT

BY C. HAZEN TRAYVOR

In the days before photography—and there are men still hale and hearty who remember that far back—the world did not think so much about speed as it does now. The first railroad train moved at about the rate of a brisk walk. It took five

or six weeks to cross the Atlantic. When audiences laughed over "Darius Green and His Flying Machine" they did not dream of such a speed as one hundred miles an hour.

In the days of the first photographs the world was much slower



IN AIR AND SEA

MADE WITH A GRAFLEX





Before the Flight
Made with No. 3A Folding Pocket Kodak

in movement than it is now, and it did not occur to anyone to lament that it took several minutes' exposure to make a picture—unless it was a “sitter” when they had fastened him in a chair, painted his face white and told him to stare steadily and think of his past life.

It is interesting to realize that when a quicker life came, quicker photography came with it, just as with the demand for portability came the film, and with the film the folding Kodak. And so in this age of flight there is the light, compact camera to be carried aloft. When the implement was needed it was there. This is the road upon which invention and

enterprise always have proceeded—the road of the thing needed.

One catches the spirit of these things in looking over a bunch of Kodak pictures, or of marvels performed by the Graflex. It is impossible to review the various interpretations of the world's activities without a sense of gratefulness for the medium. As a matter of fact, not only art but science is very grateful to quick photography. Many problems of medical science have been solved by camera reports of the body's action. The throb of the heart has been photographed. Manufacture, too, is solving problems with quick photography.

Elated with its power the cam-



Running Around the World

Made with No. 3A Folding Pocket Kodak

era turns with particular enthusiasm to records of flight on sea and land, and in the air. It has captured the secret of the birds. It participates in the flight spirit of the age. It rides above the clouds. It winks gayly from the observation platform of the limited. It dives with the submarine or the undersea naturalists. It is the companion of Adventure, the secretary of Sport, the first aid of Science, the hand-maiden of Art.

The joy of photography—if you will let me express my own enthusiasm—is that it not only can participate so delightfully in

the animated features of modern life, that it can not only remind us of a busy or a romping world, but that it can tell us the simple, tranquil story (sadly tranquil when we think of the shadow of war) of a village street, as in the frontispiece to this number of KODAKERY.



By forming the habit of never leaving the shutter set for bulb or time exposures when the camera is closed, you will not be apt to make time exposures when you wish to make snapshots.



A Venetian By-way

THE INTENSITY OF THE LIGHT WHEN PRINTING

THE customary method of printing on Velox paper by artificial light is, after placing negative and paper in frame, to hold the latter up to the source of light for the necessary time. This is quite simple and apparently there is little chance of anything going wrong, but, notwithstanding, there is often a great lack of uniformity when several prints are made from one negative, some being undertimed and some overtimed. On the other hand, when printing from different negatives of slightly varying density, it appears diffi-

cult to judge exactly the proper length of exposure.

Many of our readers have doubtless experienced this difficulty and have possibly laid the responsibility on light, paper or developer, but the real reason is quite simple when understood.

When we hold the printing frame in front of the source of light, we should endeavor to follow the rule laid down in manuals and text books to have the distance between negative and light equal to the diagonal of the negative, but in making successive exposures, this distance can-



Waiting for the Tide

not be rigidly adhered to unless a solid support is used to carry the frame and the latter returned to its exact position each time.

The effect of varying the printing distance a matter of an inch or so either way, may not be fully appreciated, but it is nevertheless considerable, this being due to the rapidity with which the intensity of the light falls off as the distance increases. The rule is that the illumination decreases as the *square* of the distance, thus, if at 5" from the light the correct exposure is 4 seconds, at 10" it will not be 8 seconds but 16 seconds.

It is equally as important to see that both ends of the negative are at an equal distance from the light source. If the frame be placed obliquely, one end will receive considerably more exposure

than the other, of which fact advantage can often be taken to correct matters when one end or side of a negative is thinner or denser than the remainder, by placing same further from, or nearer to, the light as the circumstances demand.

Enough has been said to indicate a very probable source of variation in Velox printing, and if attention be paid to the points mentioned, a far greater percentage of uniform and perfect prints will be produced, with the added advantage that when it is desired to make any modification, such as suggested in the last paragraph, this can be accomplished with greater certainty, as the exact extent to which the normal conditions are altered being known, the results are under control.



Very Exclusive Afternoon Tea
Made with No. 3A Folding Pocket Kodak



A Patient
Profile

Made with No. 3A
Folding Kodak and
Portrait Attachment



Arab Blacksmiths

Made with No. 3A Folding Kodak

THE BEST PRINT THE NEGATIVE CAN YIELD

EVERY amateur who does his own printing wishes to make the best prints that the negatives can yield. In order to obtain the best prints it is necessary, first, to select the grade of paper that is best adapted for recording the gradations of light and shade that are recorded in the negative. The way to do this is explained by Dr. Mees, in the following article: "The Range of Contrast, from Highlight to Shadow." Second, it is necessary to expose the print to the printing light for the right length of time. This is discussed in "The Right Length of Time

to Print," on page 18. Third, it is needful to develop the print for the right length of time, the importance of which will be explained, under the title, "Developing Velox Prints," in the June KODAKERY.

By carefully following the points made in the two articles printed in this number, and the article which we have promised for the June number, the amateur photographer will learn how to make prints that will represent the most faithful reproduction from a negative image in a picture on paper.



THE RANGE OF CONTRAST FROM HIGHLIGHT TO SHADOW

BY DR. C. E. K. MEES

THE function of photography is to obtain a representation of objects. This is done by recording the different intensities (which we will call the brightnesses) of light reflected by the objects. In the landscape shown in Fig. 1, for instance, the clouds are very bright, and, though the light reflected from the clouds increases the brightness of the sky, the sky itself is not so bright as the clouds. The weeds and

grasses in the foreground are much darker than the sky, while the shadows in the woods have less light in them. The range of brightness of such a landscape is generally not so much as one would, at first sight, expect it to be. If we take the darker shadows in the foliage as the darkest places in the picture we shall find that the weeds are about three times as bright, the water ten times as bright and the sky and



Figures in circles indicate ratio of brightness between different parts of scenes



the clouds about fifty times as bright, so that the extreme difference in the brightness of the different parts of such a landscape will be about 50:1, the clouds being fifty times as bright as the darkest parts of the picture. Unfortunately, owing to the limitations of the halftone reproduction process, our illustrations cannot show these extreme differences in brightness.

If the day is dull and there is no heavy foliage, the brightest parts of the landscape may be only eight or even only four times as bright as the darkest shadows, while under extreme conditions, when we are trying to photograph at the same time the shadows in a wood and sunlit clouds outside, the clouds may be two hundred and fifty times as bright as the shadows in the wood, as is shown in Fig. 2. The function of the photographic process is, therefore, to render into different depths of deposit in the print the different degrees of contrast which occur in various photographic subjects.

In making a photograph there are two stages—the making of the negative and the printing of the negative upon paper. In making the negative the whole scale of gradations is inverted, so the dark parts of the negative repre-

sent the light parts of the subject, and if the finished print is to have the same scale of light and shade as the subject, it is necessary that the scale should be inverted *exactly* in making the negative. This means that where the weeds were three times as bright as the deep shadows in the heavy foliage, the spots in the negative which represent the weeds must let only one-third as much light pass through them as can pass through the spots representing deep shadows in the foliage, and, in the same way, since the clouds in the landscape we are considering are fifty times as bright as the deep shadows, the spots representing the deep shadows in the negative must let through fifty times as much light as the image of the clouds in the negative.

Now, the total scale of brightness which a film or plate can render is limited, although it is continually the object of the maker to extend and improve the length of the scale, but the scale that Eastman film can render is considerably more than the scale which occurs in most natural subjects; the scale which occurs in the subject we are considering, for instance, is 50:1, the brightest part being fifty times as bright as the darkest, while the film can render correctly a scale of 100:1;



Watkins Glen

Made with No. 3A Folding Kodak, by George G. Smith

but it can only do this if the exposure is right; that is, if the scale which the film can render is 100:1 and we want to photograph a subject having a scale of 50:1 we can make a mistake in exposure by giving twice as much as the minimum or half as much as the maximum exposure which will correctly render the scale and still obtain a *correctly* exposed negative, since we have an available range of 100:1, but if we give less than half the maximum or more than twice the minimum of correct exposure some of the scale of the subject will fall outside the range which the film can correctly render, consequently the rendering will not be quite correct.

In outdoor work there are few subjects that we photograph that have as much contrast as 50:1, and since the less the contrast in our subject the greater the range of exposures that will correctly render the light intensities, and consequently give us a correctly exposed negative, and since failure in obtaining a *perfect* rendering is not easily perceptible, it is evident that the exposure may be somewhat less than the correct exposure or a good deal in excess of correct exposure without doing any harm. It is just because most amateurs err on the side of under-exposure when making snapshots,

and because it is always well to give a full exposure rather than to run the risk of getting part of the scale of the subject in the region of under-exposure, which would cause a loss of detail in the shadows, that the golden rule "*expose for the shadows and let the highlights take care of themselves*," should be carefully observed.

When we come to printing our negative, we must again reverse the scale of brightnesses so that the brightness of the weeds in the foreground, which was three times as great as the brightness of the deepest shadows in the subject, will appear three times as bright as the deepest shadows in the print. In order to obtain the most faithful rendering of the scale of brightness in different kinds of subjects printing papers are made of different degrees of contrast, by means of which we can get the best reproduction of the scale of the subject in our print. The different grades of paper are made, then, as a reserve power to enable us to record in our pictures the different degrees of brightness of our original subject. The different grades of contrast of the various grades of paper also enable us to increase or decrease the degree of contrast shown by the negative to be printed.

Special Velox is designed to render approximately the same degree of contrast that is recorded by the negative. It is adapted for negatives that were correctly exposed and correctly developed.

Regular Velox is designed to render somewhat more contrast

than is recorded by the negative. It is adapted for negatives that lack sufficient contrast.

Contrast Velox is designed to render much more contrast than is recorded by the negative. It is adapted for negatives that have very little contrast.



A Thoughtful Mood

Made with No. 3A Folding Pocket Kodak, with Portrait Attachment

THE LIGHT OF



HOME IN EUROPE

AS SEEN BY THE KODAK





Correctly Printed

Printed, 15 seconds; developed, 30 seconds. Special Velox

THE RIGHT LENGTH OF TIME TO PRINT

THE images in negatives and the images on development papers consist of metallic silver, embedded in gelatine.

Before exposure and development the silver in the gelatine is not in a metallic state but exists in the form of salts. These silver salts are sensitive to light, and after light has acted on them they can be converted into metallic silver. The photographic method of effecting this transformation is by the process of development.

The gelatine coating of a film, a plate or a sheet of development paper has a measurable thickness and it is the difference in the thickness of the developed (me-

tallic) silver in different parts of the image that produces the high-lights, halftones and shadows of the picture.

We view a negative by looking through it and we make a print from a negative by the light that passes through it, so it does not matter whether the image, as a whole, contains a comparatively thin deposit or a comparatively thick deposit of silver—whether the image lies near the surface of the gelatine or whether it extends from the surface deeply into the gelatine—the negative will make a perfect print in either case if it records all the lights and shades of the subject photographed. This



Under Printed

Printed, 5 seconds; developed, 30 seconds. Special Velox

explains why good prints can be made from correctly-exposed and over-exposed negatives and also from correctly-developed, slightly

under-developed, and slightly over-developed negatives.

It is difficult to judge with absolute accuracy the exposure a



Over Printed

Printed, 40 seconds; developed, 30 seconds. Special Velox

negative should receive. From what has been stated above and from previous articles in KODAKERY we have learned that absolutely correct exposures are not necessary for making good printing negatives.

In making prints, however, the case is different. We view prints by looking at them, instead of through them; consequently, a print should record on its surface those gradations of light and shade that make the picture.

From this it will be seen that the print must be correctly printed and correctly developed, or it will be either too light or too dark. Fortunately we can do both these things with ease and certainty.

In printing we have four factors to consider: (1) the length of time the print is exposed to the printing light; (2) the distance the negative is placed from the light; (3) the temperature of the developer; and (4) the length of time the print is developed.

By keeping the developer at a fixed temperature (70 degrees is best), developing each print for exactly the same length of time, and by always placing the negative at the same distance from the light, three of these factors become known quantities. By adhering to these three known quantities it becomes easy to find the

one remaining unknown quantity. We do this by exposing and developing a print. If it looks too light when it is in the fixing bath it has been exposed for too short a time, and if it looks too dark it has been exposed too long. A very few trials will determine the time of exposure necessary for making a print that looks just right, and when we have determined this time we will have found the unknown quantity.

Since all the factors have now become known we can, by adhering to them, make any number of prints from the same negative that will be exact duplicates of each other.

Our illustrations show the results obtained by printing for different lengths of time, with the printing frame at the same distance from the printing light in each case. Each print was developed for the same length of time, with the temperature of the developer at 70 degrees. A comparison of these pictures shows that a badly under-printed print is weak and lacking in detail, while a badly over-printed print is too dark and also lacking in detail.

The subject for our illustrations was selected because in addition to showing how detail is sacrificed through faulty print-



Under Printed

Printed, 10 seconds; developed, 30 seconds. Special Velox

ing, it also shows that under-printing or over-printing gives a wrong conception of distances. Note the varying tones of the distant hills across the river.

It is just as easy to print for the right length of time as for the wrong length of time, and a rightly printed print always more faithfully represents the subject.



RULE FOR CONVERTING *f.* STOP NUMBERS INTO U. S. NUMBERS

STOPS on anastigmat lenses are usually marked according to the *f.* system, which is based on the diameter of the effective stop opening. The stops on rectilinear lenses are, however, marked according to the Uniform System, which is based on the area of the effective stop opening.

Since the U. S. markings in-

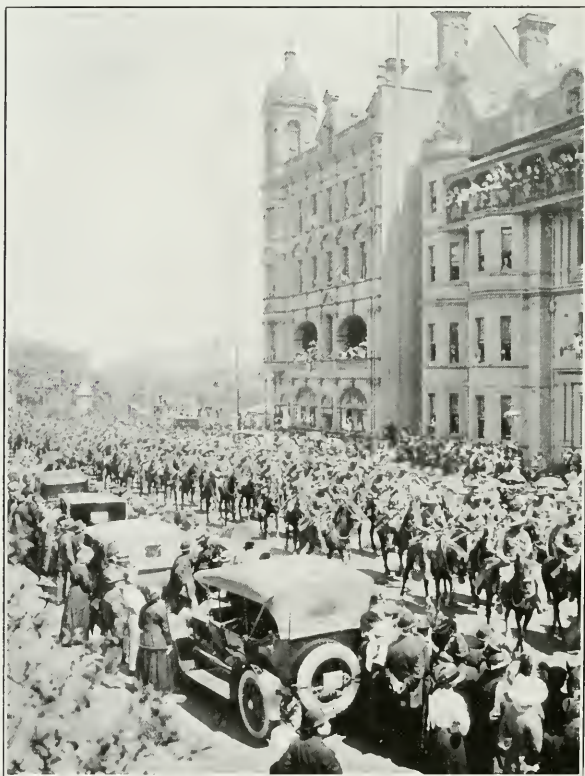
dicate the relative (not actual) exposure that should be given for all the stops when the exposure for any given stop is known, photographers often wish to know the U. S. value of all the stops on their anastigmat lenses.

While the U. S. values of all the standard stops from *f.*8 to *f.*45 have previously been pub-

lished in KODAKERY, inquiries are constantly being received regarding the U.S. values of such stops, larger than *f*.8, as are not commonly listed. For instance, stops marked *f*.6.9, *f*.7.5, etc.

The rule for calculating the U. S. value of any stop whose *f*.

value is known, is to square the *f*. number and then divide the product by 16. For instance, if the *f*. value is 6.9, then the U. S. value is $6.9 \times 6.9 \div 16$. The result is 2.9. The U. S. value of *f*.7.5 is $7.5^2 \div 16 = 3.5$, and of *f*.7.7 is $7.7^2 \div 16$, which equals 3.7.



Australian Troops in Sydney

Made with No. 3A Folding Pocket Kodak

GRAFLEX STABILITY

WERE you to ask a Graflex user what the advantages of a Graflex are, he would probably reply, the Graflex has an automatically opening focusing hood on the top of the camera, at the base of which is the ground glass on which the image of the subject can be seen right side up, the full size it will appear in the finished picture, up to the very instant of exposure; and with the Graflex one is able to make instantaneous exposures ranging from $\frac{1}{5}$ of a second up to $\frac{1}{1000}$ of a second as well as time exposures of any duration.

These are some of the ordinary everyday advantages of the Graflex. They are, as it were, parts of the Graflex nature. These characteristics distinguish the Graflex from other members of the camera family, just as the power of flight distinguishes birds from other members of the animate world. But the Graflex has another characteristic—stability, and stability is of vital importance in emergencies.

Graflex stability has made the Graflex the choice of travelers and explorers. It was a Graflex that was carried by Mr. Frank Hurley, the official photographer of the Shackleton South Polar Expedition, and went with him into the sea when he broke through the ice. In reporting the incident, Mr. Hurley said: "It did not hurt the camera—it was a Graflex."

The following extracts from letters received from Mr. Arthur Carpenter, of Peabody Museum, Harvard University, Cambridge, Mass., Field Director of the Harvard University 1916 Central American Expedition, and photographer to the Carnegie Institution's 1916 Central American Expedition, clearly demonstrate what we mean when we speak of Graflex stability:

"If you will pardon the length of this letter I cannot refrain from expressing my appreciation of the efficiency and service rendered by some of your more recent models of Graflex cameras. Doubtless you receive numerous such communications but nevertheless I feel that some of my Graflex cameras have really done most extraordinary work. Starting with a strongly formed prejudice that especially constructed foreign cameras were the only ones suitable for exacting scientific work I am coming rapidly to realize that certain of the stock patterns of Graflex cameras can be made to give service quite the equal if not in some respects superior to that rendered by much of the foreign apparatus.

"During the past twelve or fifteen years I have owned many specimens of Foreign and American built cameras but the performance of the afore-

mentioned Telescopic R. B. Graflex in my work has surpassed that of any other camera with which I have been familiar. To recount the experiences of that one camera in particular would almost seem to be romancing. Days on end of exposure to the blistering tropical sun, drenchings in torrential rains, submersions for hours when overboard or when horseman and mount were overcome and swept from their feet by mud laden floods, dust and sand storms in the arid lands, cutting volcanic ash in the highlands, exposure for weeks to the steaming damp of tropical and subtropical swamps and lowlands, hundreds upon hundreds of miles of joint-racking travel on mule and horseback, and repeated landings through heavy surf or from swamped boats on hostile shores where small heed was given to the photographic apparatus, all make up a career which to me seems truly remarkable for any one camera.

"Three times over I took it on expeditions which I expected would put an end to its usefulness, yet at the time of its destruction* it was giving almost the same precise service that it had in the beginning.

"Of course, the camera had reasonable care, but even at that, the construction of a shutter which under constantly adverse field conditions can be released between sixteen and eighteen thousand times without serious mishap or appreciable diminution of speed is an achievement upon which you deserve extensive congratulations.

Very truly yours,

Signed, ARTHUR CARPENTER."

*"A 4 x 5 R. B. Telescopic Graflex Camera, which I have carried for two years in tropical expedition service, was recently destroyed during a surprise attack on an expedition of the Carnegie Institution by natives in the deep jungles of the Yucatan Peninsula. Since a third of our small party was shot down before we had time to take action, the loss of the camera and other equipment was, at the time, of minor consequence, but now, of course, I am under the necessity of replacing my outfit."



FILTER FACTORS

WHEN a color filter is placed in front of the lens on a camera it prevents part of the colors of which white light is composed from passing through the lens, so the light that makes the picture is not white, but is of the same color as the filter.

Orthochromatic filters are yellow, consequently the light that passes through them is yellow.

Since films and plates are not as sensitive to yellow as they are to white light the use of orthochromatic filters increases exposure. The number of times exposure must be increased when a filter is used is called the multiplying factor, or the filter factor.

The multiplying factors given by the Kodak Company for the filters of their manufacture are

calculated for exposures that will record shadow detail. For instance, should the exposure that will record shadow detail be 1 second without a filter and 10 seconds with a filter, the Kodak Company would give this filter a factor of 10.

When the Kodak Color Filter is used for photographing landscapes, and the best rendering of clouds and sky is preferred to detail in nearby objects on the landscape, a factor of 3 will be ample, but when detail in dark

colored, nearby objects is desired, and when flowers are photographed at short range, the exposure through the filter should be 10 times as long as the exposure that would be needed without the filter.

In the purchase and use of a filter the photographer should make sure of the basis used by the manufacturer in naming his factors. If he uses the sky as a basis and gives his filter a factor of 3 it would necessarily follow that the landscape factor would be 10.



NEGATIVE AND PRINT CRITICISM

OUR purpose in inviting you to send us negatives and prints for criticism is that you may learn, from our criticisms, how to determine for yourself whether your negatives were correctly or incorrectly exposed and developed and whether your prints faithfully record the gradations of light and shade that are recorded by the negatives from which they were made.

From our commendations you will learn what we regard as excellent in your work. From our adverse criticisms you will learn how your work impresses one who is not influenced by the feelings that a creator has for his own creations.

It is best to send us a few, rather than many negatives and prints, at one time. Both negatives and prints will, of course, be promptly returned, and our criticisms offered free of charge.

ADDRESS

"KODAKERY," CANADIAN KODAK CO., LIMITED,
TORONTO, CANADA

With the ordinary lens equipment
blue photographs light—yellow pho-
tographs dark.

With a

KODAK COLOR FILTER

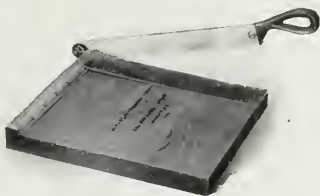
these colors photograph much more
nearly as they appear to the eye—
yellow is recorded as a light color and
blue as a dark.

The price ranges from \$0.50 to \$1.00
according to size.

CANADIAN KODAK CO., LIMITED
TORONTO, CANADA

At your dealer's.

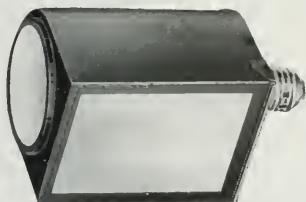
Kodak Trimming Board



An inexpensive trimmer made of hard wood with a good quality steel blade and fitted with rule. The Transparent Trimming Gauge at an extra cost of 25c will prove itself a profitable investment.

THE PRICE

No. 1, capacity, 5 x 5 inches	-	-	-	-	-	\$0.50
No. 2, capacity, 7 x 7 inches	-	-	-	-	-	.70
Transparent Trimming Gauge (extra)	-	-	-	-	-	.25



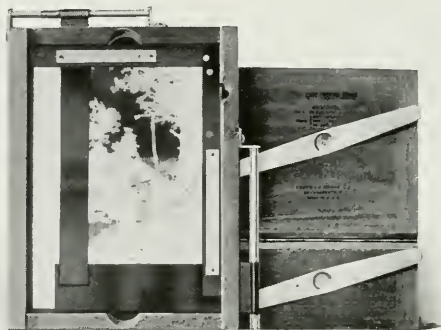
Brownie Safelight Lamp

A bit larger than the bulb it holds, this lamp may be screwed into the ordinary electric socket where it becomes at once a safe means of illumination for the improvised dark room.

PRICE, \$1.25

CANADIAN KODAK CO., LIMITED
TORONTO, CANADA

At your dealer's.



KODAK AUTO-MASK PRINTING FRAME

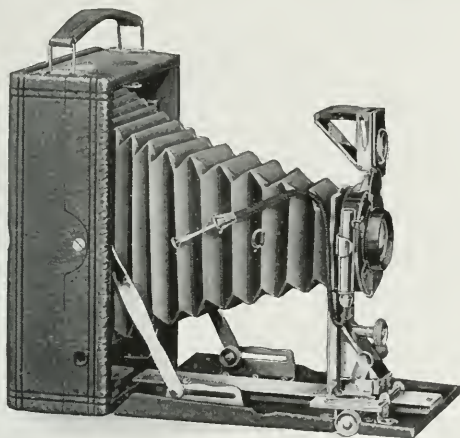
A printing frame that offers two distinctive features—a mask that may be readily adjusted to fit all amateur sized negatives and a device which firmly locks mask and negative in position. Either feature is enough to put the Auto-Mask in the efficiency class.

THE PRICE

Kodak Auto-Mask Printing Frame - - \$1.00

CANADIAN KODAK CO., LIMITED
TORONTO, CANADA

At your dealer's.



Add to your equipment a
Filmplate Premo

An unusually desirable camera for $3\frac{1}{4} \times 5\frac{1}{2}$ pictures. As light and compact as the average film camera, it takes films or plates with equal facility and offers the important advantage of ground glass focusing with either. Thus it may be used for the most accurate composition and focus, or as a daylight loading snap shot camera with the usual focusing scale.

Equipped with highest grade of R.R. lens and Kodak Automatic Shutter. Has rack and pinion focusing attachment, swing bed, rising and sliding front—a carefully constructed, efficient camera of the highest order.

Price, \$25.00

*Premo catalogue free at the dealer's,
or mailed by us direct.*

CANADIAN KODAK CO., LIMITED
TORONTO, CANADA



KODAK DRY MOUNTING TISSUE

Here is a mounting medium that looks and acts like paper until a hot iron is applied *and then*, with the print in proper position and further handling with the fingers unnecessary, it sticks like glue.

THE PRICE

Size, $3\frac{1}{2} \times 3\frac{1}{2}$, 3 dozen . . \$0.10

Size, $3\frac{3}{4} \times 4\frac{1}{4}$, 3 dozen . . .10

Size, $3\frac{3}{4} \times 5\frac{1}{2}$, 2 dozen . . .10

Size, 4 x 5, 2 dozen . . \$0.10

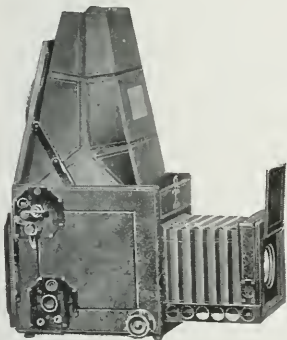
Size, $4\frac{1}{4} \times 6\frac{1}{2}$, 1 dozen . . .10

Size, 5 x 7, 1 dozen . . .10

CANADIAN KODAK CO., LIMITED
TORONTO, CANADA

At your dealer's.

The Telescopic Revolving Back Graflex.



This camera is made in two sizes $3\frac{1}{4} \times 4\frac{1}{4}$ and 4×5 . It will make negatives on Eastman Graflex Film, Glass Plates or Film Packs. The bellows extension is sufficient to accommodate lenses having the focal length necessary to give a large image at a considerable distance from the subject.

The reflecting mirror and focusing screen show the image right side up, the size it will appear in the finished picture, up to the instant of exposure.

The Graflex Focal Plane Shutter which is built into the camera, operates at any speed from "time" to $1/1000$ of a second.

Send for catalogue

CANADIAN KODAK CO., LIMITED
TORONTO, CANADA



FUN BY FLASHLIGHT

You can go the round of the clock with your Kodak.

It's never too late—when darkness sets in Eastman Flash Sheets and the Kodak Flash Sheet Holder offer admirable photographic illumination. They have resolved flashlight work to its simplest forms—and very interesting you will find it.

The price of the Kodak Flash Sheet Holder is \$1.00

CANADIAN KODAK CO., LIMITED
TORONTO, CANADA

At your dealer's.



Performs by the light

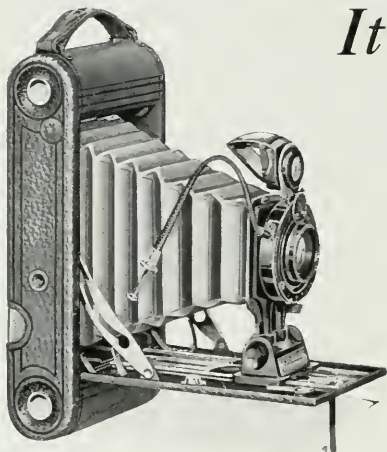
VELOX

is a real help to the amateur in making good prints.

A photographic paper with excellent gradation as well as latitude sufficient to compensate for reasonable errors in exposure whose manipulation is simplicity itself, is bound to help.

CANADIAN KODAK CO., LIMITED
TORONTO, CANADA

At your dealer's.



*It fits the
pocket*

Pictures

2 $\frac{7}{8}$ x 4 $\frac{7}{8}$

The New 2C Kodak Jr.

A thin, slim camera for pictures of the somewhat elongated post card *shape*—but just a trifle smaller—it fits the pocket.

Accurate and reliable, because made in the factories where honest workmanship has become a habit, simple in operation, it meets every requirement in hand camera photography.

Autographic of course, all the folding Kodaks now are.

No. 2C Autographic Kodak Jr., with Kodak Ball Bearing shutter having speeds up to 1-100 of a second and meniscus achromatic lens	\$12.00
Ditto, with Rapid Rectilinear lens	14.00
Ditto, with Kodak Anastigmat lens, <i>f</i> .7.7	19.00

All Dealers.

CANADIAN KODAK CO., LIMITED
TORONTO, CANADA

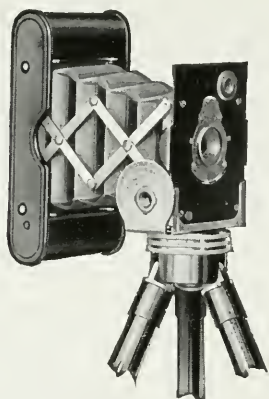
KODAKERY

A
MAGAZINE *for* AMATEUR
PHOTOGRAPHERS



JUNE 1917

CANADIAN KODAK CO., LIMITED.
TORONTO, CANADA.



Vest Pocket Kodak Tripod Adapter

So small is the Vest Pocket Kodak and so compact that there is no room for tripod sockets in the camera itself.

However, it is now possible to use the Vest Pocket Kodak with tripod whenever desirable—the Vest Pocket Kodak Tripod Adapter, the latest of the Kodak helps, sees to that.

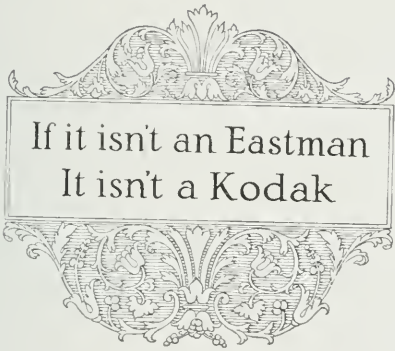
Slipped on over the front standard of the camera, as in the illustration, this device makes possible rigid, tripod support with the V. P. K. in either vertical or horizontal position.

THE PRICE

Vest Pocket Kodak Tripod Adapter - - \$.50

CANADIAN KODAK CO., LIMITED
TORONTO, CANADA

At your dealer's.



If it isn't an Eastman
It isn't a Kodak



ME AND POP

Made in London, England, with No. 3A Folding Pocket Kodak



PUBLISHED MONTHLY—YEARLY SUBSCRIPTION, 50 CENTS; SINGLE COPIES, 5 CENTS

VOL. IV.

JUNE, 1917

No. 8



ON THE BANKS OF THE SEINE
Made with No. 3A Folding Pocket Kodak

REMEMBERING IT

BY C. HAZEN TRAYVOR

THE other day when I prowled through a batch of old Kodak films, feeling again the breeze of high places, the salt touch of the sea, the warm sunshine of tropic places, the stir of races, the excitement of festivals and processions, and the lazy comfort of quiet country summers, I met with a hard fact.

Here is the hard fact: You don't remember all, or just what, you think you will remember. I was sure I should remember just which

Southern river had very unusual ice in it. I was sure I should never forget which town road had the palm-trees border. I never expected to forget which tribe the Indian belonged to, or which of the ships it was I pictured from the captain's bridge. All the same, I did forget.

Mind you, I had record slips, and a numbering system. I bless the autographic feature every time I look at the older methods that preceded it. But I hadn't always

written down the right thing. "From the Captain's Bridge" didn't tell me the name of the ship. "Long Face" didn't tell me the name of the Indian tribe, which I much wished to remember.

In other words, I had written down very often the things I could remember and left out the things I didn't remember.

This set me to thinking not only as to my own bad habits but as to title memoranda I had seen on scores of photographs. "By the Shore" is truthful enough but there isn't a chance in a million that anyone will look at the picture and *not* know that it is by the shore. *Which* shore would be very interesting, perhaps, and, it may be,

particularly important to the photographer himself.

Take a title like "Bargaining" for a market-place picture. Nothing could be plainer than the bargaining. But *where* the bargaining is going on, whether in Rouen or Dieppe, in Florence or in Turin, is something of real importance, and something that may very likely be forgotten by the owner of the Kodak that made the picture.

That picture of the yacht was so obviously a certain yacht when you caught it that you were sure you would never forget its name. But something happened—you visited another a month or two later, perhaps—and name and date become really significant. I once labelled



ANCIENT WALLED FORTIFICATIONS IN KOREA

Made with No. 3 Folding Pocket Kodak



THE START OF THE RACE

Made with No. 3A Brownie

a battleship deck picture (the marines were drawn up in a handsome line) with the name of the ship and the date. You will guess that I was grateful for the exactness when that noble craft afterward went down in Havana harbor. It was the battleship "Maine."

So that I am urging you especially since the autographic now makes

it so much easier, to label the fact that may be hardest to remember "Where and when" or "who and when"—let these be the watchwords of your picture record efficiency. Not "A Brookside Cabin"—both brook and cabin are right there before you—but "Napier, Ont., 6 '16." This is the real first aid to the whole machinery of recollection.

A TIGHT
FIT ON A
DARTMOOR
ROAD

(They "Keep to
the Left" in England)

*Made
with No. 3A
Folding Pocket Kodak*



PLOWING RICE FIELDS IN HAWAII
Made with No. 3-A Folding Pocket Kodak

FIXING, WASHING AND STORING NEGATIVES

A NEGATIVE consists of metallic silver and gelatine supported on a sheet of film or glass. All these substances are extremely stable and there is no reason why a negative that was thoroughly fixed and thoroughly washed should undergo any appreciable changes if it is kept under favorable conditions.

The causes that are known to produce changes in negatives are: insufficient fixing, insufficient washing and the absorption of injurious chemicals through prolonged contact with, for instance, common wrapping paper, newspaper or other kinds of paper that are not made especially for photographic purposes.

Since thorough fixing, thorough washing and storing negatives in a suitable container are the three

things needed for preserving them, we will discuss these in detail.

When a creamy color (the emulsion containing silver bromide) is seen in a negative it indicates insufficient fixing. If this is discovered before the negative has been exposed to strong white light it can be removed, so it will leave no stain, by placing the negative in a fresh acid fixing bath and leaving it there for half an hour, after which it must be thoroughly washed and dried. If the creamy color is not discovered until after the negative has been exposed to strong white light it probably cannot be removed without leaving a stain.

When a negative is removed from the fixing bath too soon after the creamy color has disappeared it will also be insufficiently fixed and will change to a rusty brown



IN AN ITALIAN GARDEN
Made with No. 3-A Folding Pocket Kodak



AT THE MONKEY HOUSE

Made with No. 3-A Folding Pocket Kodak

after a time. This brown stain cannot be removed without injuring the negative.

In the fixing process the hypo first dissolves the undeveloped silver bromide. As soon as this has occurred the creamy color has disappeared and the negative is clear, but it is not yet thoroughly fixed. It still contains an invisible double salt which is insoluble in water and, consequently, cannot be removed by any amount of washing. This double salt is, however, soluble in hypo and if the negative is left in the hypo long enough it will be wholly dissolved.

Many photographers leave their negatives in the fixing bath twice

the length of time it takes to clear them. Experience has proven this custom a wise and safe one, for it insures the removal of the double salt, providing the fixing bath has not become exhausted by the time the negatives are cleared.

The writer once fixed negatives in a bath that had been so weakened by prolonged use that it took 30 minutes for the negatives to clear. The negatives were left in the bath for 60 minutes. Some of them were then fixed again in a fresh bath while the others were not. After all the negatives had been washed and dried they were labelled and laid aside for observation. Those that were fixed in both

the old and the fresh baths have never changed, but those that were only fixed in the old bath eventually discolored.

A fixing bath that will not clear negatives in less than 15 minutes should be discarded, and a fresh bath used. Hypo is cheap.

When a deposit, resembling a white powder, forms on negatives some time after they were made it is evident that the negatives were

not thoroughly washed. This deposit consists of the dried chemicals of which the fixing bath was composed. If discovered and removed by thorough washing very soon after the deposit first appears the negatives may be uninjured, but if left on the negatives for a long time, especially during the months when the air is damp, the silver is apt to be bleached and the negatives ruined.



"TREE LINE" AND BEYOND
Made with a Kodak

After fixing, negatives should always be washed from 40 to 60 minutes in running water, which is constantly passing over both sides of each negative, or in from 10 to 12 changes of water, at intervals of 5 minutes, if they are washed in a tray.

Negatives should never be stored away between the leaves of a book. Book paper usually contains chemicals that will injure a negative, and ink from a printed page sometimes becomes indelibly impressed on negatives.

Glass negatives can safely be stored, face to face and back to back, without any paper between them, in the box in which the plates were packed. The face of a glass-plate negative should not be

placed in contact with the back of another, unless the back (glass side) of the other is perfectly clean, because, when gelatine comes in contact with finger marks it absorbs them and finger marks on a negative usually show in the print.

The best way to store film negatives is to place them in an Eastman Film Negative Album, which contains 100 numbered and indexed compartments made of a special kind of translucent paper that is free from all impurities that would injure a negative.

Thorough fixing, thorough washing and observance of the precautions we have mentioned in the storing of negatives will protect them so they should remain in perfect condition indefinitely.



SHORE
FUN

Made with
No. 3A Folding
Pocket Kodak



Printed, 30 seconds; Developed, 6 seconds. Regular Velox

GREATLY UNDER-DEVELOPED

DEVELOPING VELOX PRINTS

It is impossible to over-develop a correctly printed Velox print. When the development of Velox paper has reached a certain point it stops. This point is reached when the developer has converted all the silver salts on which the light has acted into metallic silver. When this has occurred the print has been fully developed and after it has been fully developed we can neither increase its density nor can we force it to yield more detail, so nothing can be gained by leaving it longer in the developer. Excessively prolonged development will only fog the print and may also cause stains.

If our prints are to faithfully render the gradations of the negative, the light that passes through the negative must act on the print for the correct length of time. In

other words, the print must be correctly printed.

The ease and certainty with which we can determine the correct length of time to print was explained in the May Kodakery, under the title "The Right Length of Time to Print."

While the length of time to print depends on the character of the negative and the grade of Velox paper used, the length of time required for the complete development of the print depends solely on the grade of paper used. When the right developer is used at the right temperature Regular and Contrast Velox will develop fully in from fifteen to twenty seconds, while Special Velox will require about thirty seconds for complete development.

Should a print on either of these



Printed, 30 seconds; Developed, 10 seconds. Regular Velox.

SLIGHTLY UNDER-DEVELOPED

grades of paper be removed from the developer before development is completed, the print will be under-developed. While an under-exposed print fails to record all that is recorded in the negative, a correctly exposed but under-developed print may record all the details, but will fail to record the same range of contrast that the negative shows.

Velox paper should always be developed with one of the developers recommended by the manufacturers, and the temperature of the developer should be kept at 70 degrees during the period of development. By disregarding the temperature of the developer and by using developing solutions that are not adapted to the paper we will fail to produce those chemical reactions which experience has shown will produce the best results.

If the developer is too warm the

prints will show chemical fog. When the negative is printed through the opening in an opaque mask the print should have margins as clear as the paper itself before it was developed. If these margins are not clear the paper has been fogged, and when the margins are fogged the entire print will also be fogged. Fog always destroys the brilliancy of the picture.

If the developer is too cold chemical action will be retarded and the prints will be weak or flat.

Our illustrations show the results obtained by developing prints for different lengths of time. All these prints received the same exposure to the printing light. They clearly show that when a print on Regular Velox has been correctly printed it will be fully developed in from 15 to 20 seconds and that nothing is gained by leaving it in



Printed, 30 seconds; Developed, 15 seconds. Regular Velox

CORRECTLY DEVELOPED

the developer after it is fully developed.

In our May number we ex-

plained how the correct length of time to print can be determined, and we now see that the length of time



Printed, 30 seconds; Developed, 25 seconds. Regular Velox

SHOWING PRACTICALLY NO GAIN BY OVER-DEVELOPING. THE LIMITATIONS OF HALF-TONE PRINTING MAKE AN ABSOLUTELY PRECISE COMPARISON IMPOSSIBLE, BUT GENERAL COMPARISONS CAN BE MADE FROM ABOVE REPRODUCTIONS

the print should be developed does not depend on the judgment of the

photographer but is determined solely by the grade of paper used.



FINGER MARKS ON NEGATIVES

ORDINARY dirt can be removed from a negative by placing it in water for 15 minutes and then gently mopping it with a tuft of wet cotton. Finger marks, however, usually contain both dirt and oil, and since oil and water will not blend, water will not remove finger marks. Unless the finger marks have been allowed to remain on the negative long enough for the oil to penetrate the gela-

tine they can be removed by gently rubbing the negative with a tuft of cotton that has been moistened with gasoline or benzine.

Since dirt and finger marks on a negative nearly always show in the print, both sides of negatives should be kept clean. The way to insure this is to handle negatives only by their edges, and to store them where dust and dirt cannot reach them.



COUNTING SECONDS

WHEN making time exposures it is often desirable to count seconds without consulting a watch. It is difficult to time a one second or a two second exposure with a watch because the dial that records seconds on most watches is very small, and in poor light the markings that indicate seconds cannot be distinctly seen.

An easy method of counting seconds, that is sufficiently accurate for photographic purposes, is to repeat a phrase that it takes one second to pronounce. The majority of people will require one second of time to pronounce the words, one hundred and one, as rapidly as clear enunciation will permit. The last word of the sentence should always indicate

the number of seconds that have been counted. Six seconds, or instance, should be counted; one hundred and one, one hundred and two, one hundred and three, one hundred and four, one hundred and five, one hundred and six.

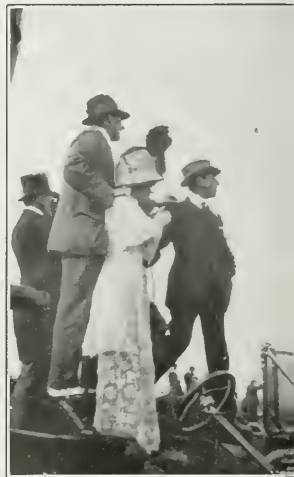
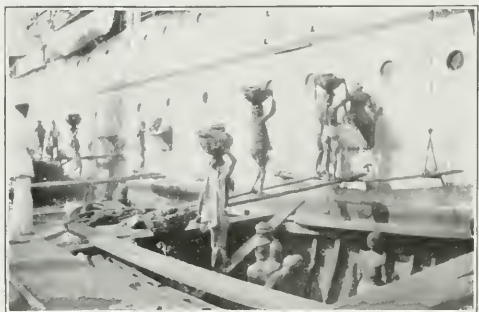
Many who use this method can count from 30 to 60 seconds without varying more than one or two seconds from the time recorded by a watch. An error of two seconds in a time exposure that is intended to be more than five seconds long can scarcely be detected in the negative. While this is a simple and reasonably accurate way of counting seconds for short time exposures, long time exposures should always be timed with a watch whenever possible.



AN OLD WORLD SHIP



VEST POCKET VISTAS





A KALEIDOSCOPIC MEDLEY
FROM THE VEST POCKET KODAK



CHOOSING A PRINTING PAPER

BY DR. C. E. K. MEES

IN Gilbert's opera the Mikado had the idea that when dealing with criminals he should pay great attention to making the punishment fit the crime, and this idea always appeals both to the sense of justice and to the sense of humor of an audience; but however important it may be, in comic opera, to select a punishment that fits the crime, it is certainly of great importance in photography to select a printing paper that fits the negative.

By a paper that fits the negative we mean a paper that can render the whole scale of the negative. The scale of the negative is simply the range of the light intensities

transmitted by it. In a very contrasty negative perhaps the blackest part will let through only $\frac{1}{100}$ th of the light transmitted by the clearest portion. In a negative of medium contrast, the densest part will let through about $\frac{1}{20}$ th of the light transmitted by the clearest portion, and in a very flat negative (one that has very little contrast) the densest part may let through as much as one-fifth of the light transmitted by the clearest portion. We should call these three scales, then, a scale of 1 to 100 for the very contrasty negative, 1 to 20 for the negative of medium contrast, 1 to 5 for the flat negative. Now, in printing,

we want the printing paper to reverse the scale of light intensities recorded by the negative as nearly as possible, so that the blackest part of the negative will be the whitest part of the print and the clearest part of the negative will be a deep black in the print; in other words, if we wish the printing paper to fit the negative we must select the grade so that when we print through the clearest part of the negative and just get the deepest black of which the paper is capable, we shall also only just print through the densest part of the negative so as to slightly tint the paper.

The difference between the two units of exposure that will produce in the one case a full black and in the other



Scale of paper too short for scale of negative

case the faintest possible tint on a photographic printing paper is called the scale of the paper; for instance, with a given paper we may find that if we give one unit of exposure, we shall just get a visible tint and that as we increase the exposure the blackness of the image on the paper will increase until, when we have given twenty units of exposure—that is, twenty times as much as we gave at first—the paper will develop up quite black and no further increase of exposure will make it any blacker. We should then say that the scale of that paper was 1 to 20, and the paper would fit a negative having a scale of 1 to 20. Now, suppose that we try to make a print on a paper having a scale of 1 to 20 from a negative that has a scale of only 1 to 5. We must time the printing so that the densest part of the negative is just printed through because, if we underprint, all the tones will be too light and the print will lack detail, and if we over-print the whole print will be too dark. Now in this case only five times as much light passed through the thinnest part as passed through the densest part of the negative. But the paper requires that twenty times as much light should pass through the thinnest part as passes through the densest part of the negative in order to give its deepest black in the shadows and only a tint in the high lights, so that, instead of getting a whole scale of tones from

white to black, in the print, such a paper restricts us to a scale ranging from a white to a gray, the densest part of the low scale (1 to 5) negative being rendered white in the print and the clearest part only gray and not black.

If, on the other hand, we print from a negative having a scale of 1 to 20 on a paper that has a scale of only 1 to 5, then the whole scale of tones on the paper will represent only a quarter of the tones of the negative, so that either we shall have to represent all the higher densities of the negative as white paper or else we shall have all the lesser densities of the negative printing as solid black; that is to say, if we use a paper having a shorter scale than the negative, we must lose detail in either highlight



Scale of paper too long for scale of negative



Scale of paper about the same as scale of negative

or shadow; either our shadows will be "blocked up," as it is called, or else the highlights will be bare of detail, while if the paper has a longer scale than the negative, then we cannot get the full black out of the paper and the print will appear somewhat gray. The great importance, then, of

selecting a paper to fit the negative is manifest.

Now, if we consider the Velox papers, Special Velox has a scale of about 1 to 20 and is suitable for printing from medium scale (medium negatives). Only extremely contrasty negatives will be found too contrasty for printing on Special Velox when the regular Velox developers are used. Even such negatives will usually yield prints that record a long scale of tones when printed on Special Portrait Velox and the prints are developed with Velox Liquid N.A. Developer. Regular Velox is a more contrasty paper, having a scale of about 1 to 10 and is suitable for printing from medium scale (medium contrast) negatives, while the very flattest, thinnest negatives—badly over-exposed or considerably under-developed—can be saved by printing upon Contrast Velox, which has a scale of about 1 to 5.

By selecting the paper to fit the negative, therefore, we can make the most, both of our negatives and of our printing papers.

ORDER FILM BY NUMBER

THERE are many models of roll film cameras in use that make negatives of the same size but require film spools of different lengths. This is owing to differences in the styles of the cameras.

Should you order a certain size of film from your dealer, without mentioning the style of camera you

are using, he might not know what you need, but if you order by number he will know exactly what to give you. To illustrate: The No. 3 Folding Pocket Kodak, the No. 3 Cartridge Kodak and the No. 3 Brownie all make $3\frac{1}{4} \times 4\frac{1}{4}$ negatives, but they are different styles of cameras and require film spools

of different lengths. The film made for one of these cameras will fit neither of the others.

Eastman N. C. Film and Eastman Autographic Film are packed in cartons. A number is placed on the ends of each carton. This number indicates the size of negative the film will make and the style of spool on which the film is wound.

The $3\frac{1}{4} \times 4\frac{1}{4}$ size of Eastman roll film is listed under four numbers, and is made for use in ten styles of Eastman cameras. Five styles of these cameras use film No. 118, three styles use film No. 124, one style uses film No. 119 and only one style requires film No. A118.

The 3A style of film is listed under three numbers, the 4×5 size under four numbers and some other sizes are also listed under two or more numbers, for cameras of various styles.

The letter A preceding the number on a film carton indicates that the film is autographic. If you are using an Autographic Kodak, a Kodak fitted with an Autographic Back, or an Autographic Brownie, make sure you order Autographic Film. Autographic records cannot be made on old style film.

Every year has witnessed improvements in Eastman Cameras. Some of these improvements have necessitated changes in the film spools. Since all models of Eastman cameras, from the oldest to the most recent, are in constant use, films must be supplied for all these models.

The number of the film used in any size or style of Eastman roll film camera is printed in large type in the manual that accompanies the camera.

Always order film by number that you may be sure of obtaining the film you need.



SEA SILHOUETTES

Made with No. 3A Folding Pocket Kodak

THE SIMPLEST WAY TO MAKE ENLARGEMENTS

HAVE you ever stopped to consider what hidden treasures and beauties there are lying concealed in many of your favorite negatives that were made with your Brownie Camera or small-sized Kodak, that only require enlarging to bring out?

Perhaps you have often noticed and admired the enlargements made from your friends' negatives and never knew how simple a matter it was to obtain just such results yourself, both easily and economically.

The simplest and most convenient apparatus for making enlargements is the Brownie Enlarging Camera which consists of a light-tight cone, that is made in two sections. On the small end of the cone is an attachment for holding the negative, and on the large end there is another attachment for holding the sheet of sensitized paper. The lens is placed at the proper focal distance, between the negative and the paper, for securing sharp enlargements from sharp negatives.

The Brownie Enlarging Camera is made collapsible, consequently the traveler can easily pack it in a trunk or large suitcase. When folded in its box the largest size (for $3\frac{1}{4} \times 5\frac{1}{2}$ negatives) occupies a space, measured in inches, of $17\frac{1}{2}$ deep by $10\frac{3}{4}$ wide by $19\frac{3}{4}$ long.

To make an enlargement with the Brownie

Enlarging Camera it is only necessary to place the negative and paper in place (this must be done in a dark room to avoid fogging the sensitive paper), and then set up the camera, with the end containing the negative, facing the light.

Make the exposure as suggested in the instructions that accompany the camera, then take the camera to the dark room, and remove and develop the paper according to the instructions furnished with the paper.

Eastman Bromide paper should be used for negatives that make good contact prints on Special Velox, and Brilliant Velvet Bromide for negatives that make good contact prints on Regular or Contrast Velox. Velox paper, which can be developed in subdued daylight, can also be used, but it requires a very much longer exposure than Bromide.

The negative holder on the Brownie Enlarging Camera is made so that it can be fitted with two different sized sheets of glass,



Made with a Vest Pocket Kodak, by D. W. Weaver



SHOWING FULL SIZE OF ENLARGEMENT MADE BY VEST POCKET KODAK ENLARGING CAMERA
from Vest Pocket Kodak Negative, a contact Print from which appears on opposite page

making it adaptable for use with negatives on which there is an Autographic Record, as well as or old style film negatives.

When enlarging from a negative on the end of which there is an Autographic Record, the negative is placed on the smaller-sized glass, with the record end of the negative flush against the edge of the wooden frame. This centers the negative in the opening. The larger sheet of glass is then placed on top of the negative and secured by means of the spring clamps.

Any size of negative smaller than the opening of the negative holder may be used for enlarging. The smaller negative will enlarge in proportion to its size (about four areas) but will not enlarge to the full capacity of the camera. In this manner Brownie Enlarging Cameras may be used for the largest as well as the smallest negatives they will hold. For instance: $2\frac{1}{2} \times 4\frac{1}{4}$ negatives may be used in the No. 3 Brownie Enlarging Camera, which is primarily intended for use with $3\frac{1}{4} \times 4\frac{1}{4}$ negatives. It will be necessary, however, to use a mask with the smaller negatives in order to prevent all light other than that which passes directly through the image from entering the camera; if this is not done the enlargement may be fogged.

Brownie Enlarging Cameras are made in various sizes for use with negatives made by all of the Brownie Cameras and Kodaks.

The No. 2 Brownie

Enlarging Camera makes 5×7 enlargements from $2\frac{1}{4} \times 3\frac{1}{4}$ negatives, the No. 3 makes $6\frac{1}{2} \times 8\frac{1}{2}$ enlargements from $3\frac{1}{4} \times 4\frac{1}{4}$ negatives and the No. 4 makes 8×10 , $6\frac{3}{8} \times 10$ and $5\frac{3}{8} \times 9\frac{3}{8}$ enlargements from 4×5 , $3\frac{1}{4} \times 5\frac{1}{2}$ and $2\frac{7}{8} \times 4\frac{7}{8}$ negatives respectively.

The No. 2 Brownie Post Card Enlarging Camera making $3\frac{1}{4} \times 5\frac{1}{2}$ enlargements from $2\frac{1}{4} \times 3\frac{1}{4}$ negatives, and the Vest Pocket Kodak Enlarging Camera, making $3\frac{1}{4} \times 5\frac{1}{2}$ enlargements from $1\frac{5}{8} \times 2\frac{1}{2}$ negatives are made on the same principle as the Brownie Enlarging Camera, but they are so compact that they are not made collapsible.

The sizes of enlargements we have stated represent in each case the size of the paper used. The *picture area* of the enlargement is necessarily a trifle smaller than the size of the paper—due to the necessity of placing the edges of the paper under rebates, to hold the paper in position in the camera.

Full instructions for setting up and using the cameras are included with each instrument.



Made with No. 2 Brownie



EARLY SPRING

Made with No. 3A Folding Pocket Kodak

PHOTOGRAPHY—1875 MODEL

BY RALPH CAMERON



A FIELD PHOTOGRAPHIC OUTFIT OF ABOUT 1875

IT would be as difficult for a passenger on a modern parlor car to imagine the first railway train (they sat in the open and took the smoke) as for the modern owner of a Kodak to fancy a field photographic outfit of thirty or forty years ago. The picture on this page, which is from a photograph that was kindly furnished by Mr. Arthur P. Irving, of Springfield, Mass., tells rather quickly the story of early photography—photography that meant development at or near the spot where the pictures were taken. Because the surface of the "wet plate" had to be moist when exposed, and had to be developed at once, the pho-

tographer, whether he was in a "gallery" or on a mountain top, had to have at hand tanks and chemicals, and an operating space dark enough to make developing safe. Because the plates were "slow" (they were vastly less sensitive than our modern films), it was possible, though uncomfortable, to work under a hood in a yellow light, behind a cloth through which head and hands were admitted by elastic-banded openings.

There were many opportunities for the exercise of individual ingenuity in those days, merely in escaping disaster. We can use all of our ingenuity now-a-days in purely artistic or human directions.

How much the lightness of films means; how much the compactness of the modern camera means; how liberating to the imagination and to the exploring or pleasure-seeking instinct it is to be able to await development—for days, if necessary, every Kodak operator knows.

The camera in the picture is a stereoscopic outfit, not in itself so different from the modern instrument, used for the same purpose, as the cart developing outfit is from the modern film tank, for example. It has two lenses, so that the two parallel images may

be made for stereoscopic purposes.

Those were the days of photography "on legs." The tripod is still an important factor, but photography, like modern transit, is now freed for flight. Consider for a moment what the man in the picture would have thought, if you had told him that the day was coming when a man, riding a steel bird, would shoot straight downward at the landscape with a camera operative in a thousandth of a second—and that he could afterwards send his negative by mail to be developed.



NEGATIVE AND PRINT CRITICISM

OUR purpose in inviting you to send us negatives and prints for criticism is that you may learn, from our criticisms, how to determine for yourself whether your negatives were correctly or incorrectly exposed and developed and whether your prints faithfully record the gradations of light and shade that are recorded by the negatives from which they were made.

From our commendations you will learn what we regard as excellent in your work. From our adverse criticisms you will learn how your work impresses one who is not influenced by the feelings that a creator has for his own creations.

It is best to send us a few, rather than many negatives and prints, at one time. Both negatives and prints will, of course, be promptly returned, and our criticisms offered free of charge.

ADDRESS

KODAKERY, CANADIAN KODAK CO., LIMITED
TORONTO, CANADA

Send for circular describing in
detail the

1917
Kodak Advertising
Competition

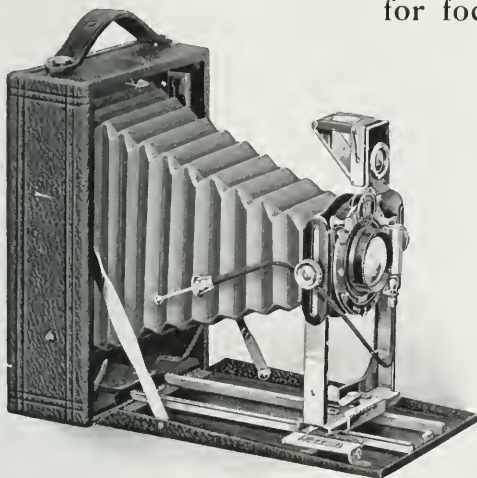
in which cash prizes aggregating

\$3,000.00

are to be given for pictures suitable
for use in Kodak advertising.

CANADIAN KODAK CO., LIMITED
TORONTO, CANADA

Films or plates and a ground glass
for focusing



Premo No. 8

Here is a sterling camera—one of exceptional worth for varied use and at little expense.

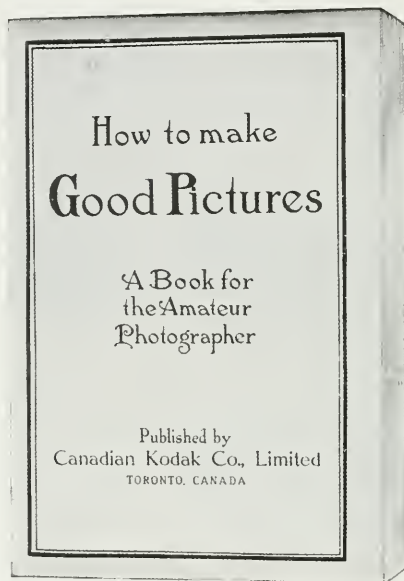
You can load it with plates or you can load it with films in daylight. One can be used just as easily as the other. You can focus on the ground glass before each exposure or you can use it with focusing scale as an ordinary snap shot camera.

Fitted with Kodak Ball Bearing shutter and tested rapid rectilinear lens, it will produce pictures of the first quality. A camera that will make a valued addition to your photographic equipment.

Prices, for 4 x 5 pictures, \$15; for $3\frac{1}{4} \times 5\frac{1}{2}$ pictures, \$16;
for 5 x 7 pictures, \$20.

Premo catalogue free at the dealer's, or mailed on request.

CANADIAN KODAK CO., LIMITED
TORONTO, CANADA



The experts who wrote this book lived every line of it—each chapter is the result of years of actual experience.

Consequently, “How to Make Good Pictures” deals little with theory, much with fact and is authentic to the last detail.

Profusely illustrated.

THE PRICE

“How to Make Good Pictures,” paper covers	\$.25
Library edition, cloth bound	1.00

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At your dealer's.



Prints by Gaslight

The best print you can get on

VELOX

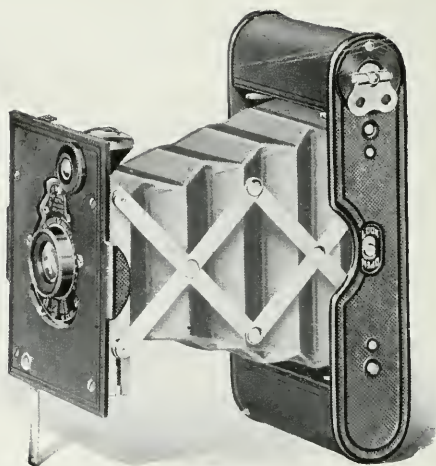
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Vest Pocket Autographic Kodak Special

Pictures,
1 $\frac{5}{8}$ by 2 $\frac{1}{2}$ inches.



VEST POCKET—it's that small.

AUTOGRAPHIC—the means of dating and titling
each negative at the time of exposure.

KODAK—simple to work, dependable in action.

SPECIAL—a *specially* good lens, a *specially* good
shutter, a *specially* handsome finish.

THE PRICE

Vest Pocket Autographic Kodak <i>Special</i> , Kodak Anastigmat lens, f.7.7 and Kodak Ball Bearing shutter	\$11.50
Ditto, with Kodak Anastigmat, f.6.9 lens	20.00
Ditto, with Bausch & Lomb Kodak Anastigmat, f.6.9 lens, (Formerly listed as the Zeiss Kodak Anastigmat)	22.50

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At your dealer's.

KODAKERY

A
MAGAZINE *for* AMATEUR
PHOTOGRAPHERS



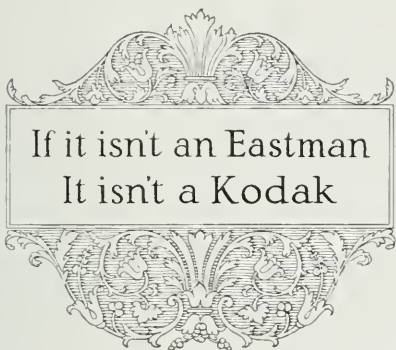
JULY 1917

CANADIAN KODAK CO., LIMITED.
TORONTO, CANADA.

“ K O D A K ”

is our registered and common-law Trade Mark and cannot be rightfully applied except to goods of our manufacture. When a dealer tries to sell you under the Kodak name a camera or films or other goods not of our manufacture you can be sure that he has an inferior article that he is trying to market on the Kodak reputation.

If it isn't an Eastman, it isn't a Kodak



If it isn't an Eastman
It isn't a Kodak



THE UNFOLDING SEASON

Made with a Kodak



PUBLISHED MONTHLY—YEARLY SUBSCRIPTION, 50 CENTS; SINGLE COPIES, 5 CENTS

VOL. IV

JULY, 1917

No. 9



SPRING GARDENING
Made with a Vest Pocket Kodak

SPRING AND THE HOBBY

BY ROBERT ALLISTER

IF a hobby really were something that one rode, it would be quite reasonable to get the animal out in the Spring for a celebrating sort of canter. Even if the hobby had been kept in practice during the winter there would be good

reason for making a special fuss over the Spring departure.

No matter in which part of the continent or in which part of the world one may live, Spring is, somehow, a particularly expectant season, high spirited and jolly by

temperament, even when it is rather hard to manage. When Nature has a "coming out" party it is natural and reasonable that we should join in with cordiality.

As a matter of fact, some hobbies have to wait on seasons. Unless one lives in a favoring climate he cannot play golf, for example, all the year round, even if so many of my far away friends can and do—with tennis into the bargain. I have chased butterflies, and the poor things are right here by me under glass. But I can do that only when my climate permits.

I can't sail my boat, either, all the year, nor with any comfort hunt minerals. A fern collection must wait. So must outdoor carpentering—O yes! I have a stableful of hobbies, all beautifully groomed. I love them all.

But I want to pay tribute, in no disrespect to the others, to the all-year-round hobbies. (Let me whisper this—I have a stamp collec-

tion, too!) I want to pay tribute above all to my cameras.

Photography is an all-year-round hobby no matter what climate you live in. I proved this again during the past winter, the most agile, good-tempered, versatile, untiring hobby I ever rode.

It has a wonderful way of being absolutely responsive to the way you feel. If you feel serious, it matches your seriousness every time. If you feel frivolous, it is with you. It is like one of those good-natured companions who are always ready for any adventure, anywhere, any time, quite as if that was just the kind of thing they would have picked out by choice.

And so, when you say, "Hello! here's Spring!" it frisks in anticipation of an impending excursion.

The truth is that there are days in Spring when the world seems entirely new, which is simply a trick, of course, but which you



IN THE GARDEN

Made with No. 1A Kodak Jr.

never resent at all. Anyway, newness is a great inspiration to adventure, experiment, and expression. There are things we want to say in pictures for which we need the help of a new season.

Incidentally, if I may be permitted to be so personal, I had to wait for the right mildness and the right patch of grass to get the early steps of a certain baby. That baby had been pictured intermittently all winter and early Spring by window light, or bundled up like a mummy in his carriage. But the choice day came when he could emerge, like a bud, in the sunshine of Spring. It was a dramatic moment!

I don't need to apologize for enthusiasm about a baby. Haven't you noticed at the movies that nothing delights the audience more, or is more certain of a "hand" or a chuckle of pleasure than the appearance of a baby? The movie people have noticed this, you may be sure, with the result that the number of plays with babies in them grows greater every day. It is a good sign.

Particularly as to Spring and Summer you are likely to have waited to do certain things. During the Winter there have been prints, enlargements, albums, lantern slides, flashlights and what not to demand attention. All this time, with the fruits of earlier work before you, there have been forming deep laid plots to capture



BUBBLE WONDERS

Made with No. 1 Kodak Jr.

certain romantic effects, certain effects of action, certain effects on water—realization of winter dreams.

Of course, we never get all of these things done. What would happen to us if we ever should finish all that we had dreamed of doing! Wouldn't it be tragic! Wouldn't it mean that we had no dreams left? And what would life be worth without dreams? To me being left without picture-dreams would be almost the supreme calamity. Picture dreams are a much more important part of life, I fancy, than most of us are in the habit of remembering. Even those

of us who do not make pictures with a camera, a pen or a brush, are *picturing* every day of life, and expecting, or at least hoping, that the pictures may come true.

Excuse this philosophy. It is one of the results of the Spring, with all of its hopes and promises and invitations. Now that I have really got the baby where I wanted him, there are three hundred or so other things I want to do with the help of the great out-doors. The world is so full of interesting things—beginning right there in the front garden! Things that you may enjoy for moments in themselves, you can enjoy for hours, for years, with the aid of the Kodak.

The Chinese have a tradition that a certain magician found a way of freezing a bowl of liquid so that everything reflected in it was preserved permanently. The tradition of this magic is thousands

of years old—as old, almost, as man's wish to keep forever the images that delighted his eye. Less than eighty years ago the magic actually happened, and it has kept on happening ever since. When we look at our Kodak negatives or our Velox prints we don't call it magic. But isn't this only because the mystery is gone? Isn't it magic all the same? If it is, then we camera enthusiasts are all magicians.

And when is it more worth while to be a magician than in the Spring?

You know that in clubs they often have a good deal of trouble to get the members to "come out." The great Kodak fraternity surely has no such trouble in Spring. The invitation is too alluring, the hospitality too cordial, the decorations too attractive, the entertainment too profuse and charming to leave any such possibility.

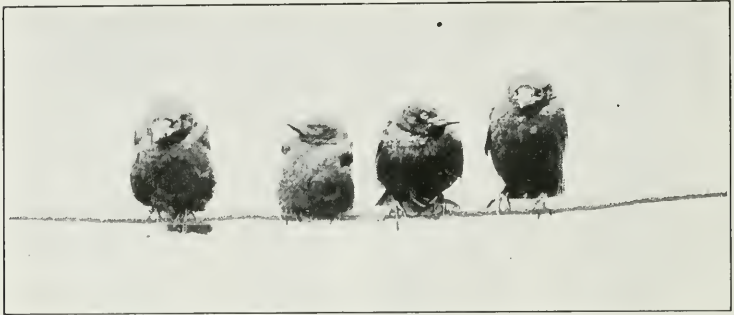


THE THIRD MAN TAKES THE PICTURE

Made with No. 3A Folding Pocket Kodak



NELSON'S COLUMN, TRAFALGAR SQUARE
Made with a 3A Kodak



FOUR CROWS OF THE YOUNGER SET

KODAKING THE BIRDS

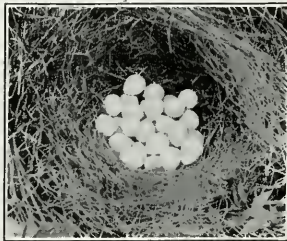
BY CHAS. I. REID

I HAVE an album. It is crammed full of prints, the product of a 3A Kodak. The variety of subjects is great; but there is a certain section in which my friends and I take more than ordinary interest. It is devoted to pictures of birds and their nests. A look into the album always recalls many pleasant hours spent in hunting and Kodaking the birds of fields and woods, and causes me to wonder why more of the great army of Kodak users do not grow enthusiastic over the sport of hunting with the Kodak. Possibly the answer was hinted at by a friend who, looking through my album, made the remark, "A lot of interesting pictures and they must have been hard to take." It is true that birds have been hunted and per-

secuted by man for so long that they have naturally grown timid, and are sometimes difficult to approach, but I have found the photographing of birds much easier than it might seem.

A most interesting method of bird photography is to obtain a series of pictures during the building of the nest, showing the progress made day by day, pictures of the tiny eggs, and the young birds just after hatching, until they are old enough to learn to fly. These pictures are comparatively easy to

obtain since the subject is confined to a certain spot. By the time the series has progressed thus far the parent birds will have become accustomed to the presence of a human and will often permit an approach close enough to



THE NEST OF THE PARTRIDGE

permit good pictures being obtained of them also.

The nests of birds are built in many kinds of places, and a little resourcefulness is sometimes necessary to get the Kodak in position to photograph them. I have tied mine to the top limb of a tall tree to photograph a nest on a nearby branch, and then waited for many minutes for the wind to calm and the Kodak to cease swinging while the exposure was being made. But since most of the birds that spend the summer with us nest in the crotches of trees, in bushes, or on the ground, the camera can usually be attached to some rigid support or placed on a tripod.

One of the things I consider absolutely necessary for successful bird photography with a Kodak is the portrait attachment. In no other way can the camera be brought sufficiently close to permit of good-sized images being obtained of these small subjects. This attachment, carefully used according to the instructions which accompany it, has always enabled me to obtain excellent results. The habitations of many species of birds are in bushes, or under trees in the shade, so that time exposures are necessary. When Kodaking nests alone, or nests containing eggs, I prefer to stop down the lens to about 16 and give a fairly long exposure—one to three seconds. When young birds are in the nest, if they are old enough to show signs of interest in their surroundings, they will be very active in craning their necks to peer over the edge of the nest, and twisting their heads to look all about them, and a shorter exposure is necessary



YOUNG CATBIRD JUST AFTER
LEAVING NEST FOR FIRST TIME

to prevent signs of movement. The best plan then is to use the lens wide open, and give a fairly short exposure, such as a fifth of a second, or with a shutter that has no such speed marking, a very quick bulb exposure by opening and closing the shutter as quickly as possible.

The picture of the little crows was specially posed for the benefit of my Kodak during the absence of the parents. The little fellows were found hopping about under the tree that held their nest, on a warm spring day, and after a perch was arranged, a sheet of paper pinned up for a background, and the Kodak focused on the perch, the little fellows were picked up one by one and placed on the branch. They seem to enjoy



THE NEST IS NEARLY FINISHED
Enlarged from No. 3A Kodak negative



A NEST IN THE BUSHES
Enlarged from No. 3A Kodak negative

the situation, and held a lively conversation among themselves in their own particular language, while I made three exposures. This spring I am going to improve every opportunity for a hike into the country, and hope to add to my collection an even better series of the interesting scenes in bird-land during the spring and summer months.

Many species are nesting in May, while in June, nearly all our insectivorous and song birds are busy with their house-keeping duties. In late June and July young birds can be found almost everywhere, in fields and forests, in city parks and along the residence streets of cities and villages.

Some species, such as the robin, for instance, raise from two to three broods each season. This

extends their nesting time well into July.

After other species have broken up house-keeping, the Goldfinch, who waits for the thistle-down, begins to nest—usually in August.

We are rapidly learning that a bird in the bush is of infinitely greater value to us than a bird in the potpie, and if we will shoot our birds with a Kodak instead of with a gun we may have the pleasure of shooting the same bird many times, and, by thus shooting him make of him a friend who will, by his consumption of crop destroying insects, help keep down the high cost of living.



Use a tripod for time exposures.



NEST AND EGGS OF WILD TURKEY

WHEN
THE
SUNNY
DAYS
COME



Made
with
a
Vest
Pocket
Kodak

IS YOUR PRINTING ROOM LIGHT SAFE?

ALL photographic developing papers are sensitive to light. If they were not they could not be used for making prints from negatives. No matter what the color of the light may be, and no matter how dim the light may be, it will affect all kinds of developing papers if they are exposed to it long enough.

Since it is not practical to develop prints in darkness they are developed in a subdued or colored light that is considered safe. By a light that is safe is meant one that will not affect the paper during the time it is necessary to handle it in the light.

Should the margins of pictures that you printed through masks be gray instead of white you should test the light by which you handle and develop the paper. To do this place an unexposed sheet of Special Velox paper, emulsion side up, on your work table, in the same position that your developing tray occupies when you develop prints.

Cover one-half of it with a sheet of cardboard and let it remain there for two minutes, then develop it, face down, for 45 seconds. If the half of the sheet which was uncovered appears gray while the part that was covered remains white after development, your light is not safe; but if the entire sheet remains white your light is safe.

Never handle Velox paper in a light that will not stand this test. If the light you are using is unsafe filter it through enough yellow or orange-colored paper to make it safe. The orange-colored paper, known as post-office paper, is heavier and more suitable than tissue.

The Kodak Safelight Lamp and the Brownie Safelight Lamp—both of which can be fitted with two safelights, one for use with films and plates and one for use with Velox and other developing papers—will give the most brilliant light it is safe to use.



"THE KID AND THE COP"

A KODAK STORY THAT REALLY DOESN'T NEED THESE
FEW WORDS

A small boy who saw the series of pictures put it that way—"the kid and the cop," and small boys are quick to recognize the significance of such a grouping. The "cop" stands for law and order, for all the hard rules of life, and when even a very small boy sees Mr. Cop and any one else together he is likely to jump at the conclusion that some rule may have been broken, or if not broken, at least bruised a bit.

The rule in this case, I think you will guess, must have had something to do with the apple tree. Anyway, scene one is the discovery, and that sounds like a story. Scene two might carry a word that belongs to slang, but

that has a technical value also, namely, "pinched." Notice that the actor of the culprit's part is doing his best to look grief stricken. But he retains his self possession when Mr. Cop begins to make his incriminating record and asks him to open his mouth and prove that he hasn't been taking the apples.

Then comes a happy thought by the culprit. "Have one," he says, "they are awfully good apples!"

This is the master stroke that gives a quick turn to the drama. Mr. Cop is a very human person. He does take the apple—and bites into it, too. After that there is nothing to be done but make friends, and scene five shows the capture of Mr. Cop to be complete.

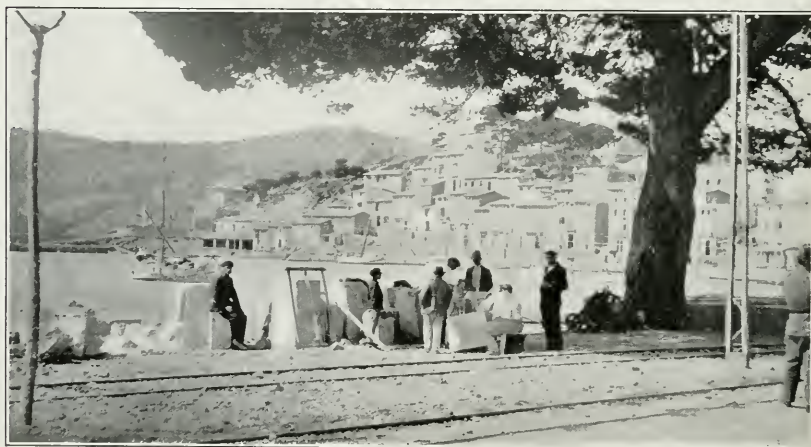


I know of nothing more interesting than the making of playettes of this sort. Perhaps you would be interested to know that this is the way "picture plays" began. Twenty-three years ago, before movies had been put on the screen successfully, the first play on a white sheet was shown before an audience in New York and afterward was seen throughout the picture play was in a batch of country. The beginning of the hand camera photographs. "Why not amplify these series of figures," said the inventor, "and make a real play?"

The thing was done. It was many years before the motion picture machine was perfected sufficiently to make possible the full length play.

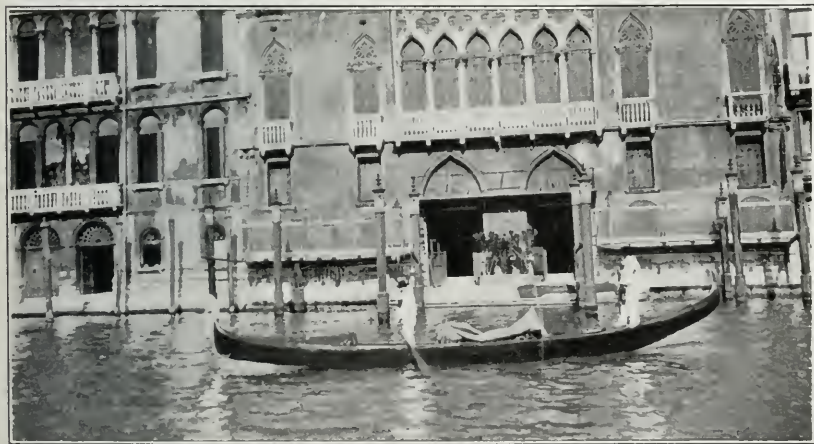


SCENES FROM



MANY LANDS

AS RECORDED BY
THE KODAK



MAKING A PRINT

BY DR. C. E. K. MEES

THERE exist enthusiastic photographers to whom a beautiful negative is a joy forever and who are quite content to keep their trophies in the way of film negatives as an end in themselves, but for most of us the object of making a negative is to get prints, and the making of prints is no small part of our photographic work.

In the olden days of photography when it was customary to sensitize one's own paper and to tone the prints with gold by a delicate process requiring the greatest care, the making of prints required much skill, but with the introduction of Velox paper many of the difficulties in making prints disappeared and the last link in the chain of simplified photography, for which the Kodak Company has always striven, was complete. Provided that the negative is good nothing is now easier than to get a good print, and even if the negative is not of the class which we might term perfect, the different grades of Velox paper make it possible to choose a grade which is appropriate to the contrast of the negative, and to get first-class results from negatives of very unequal quality.

In order to determine what grade of Velox paper to use with different negatives we should classify them according to the range of contrast they record, that is, we should determine whether a negative is best adapted for making prints on Special, Regular or Contrast Velox,

as was explained in the June KODAKERY.

After our negatives have been classified according to contrast we should select one of average density, from each of these classes, to be used as a standard in making tests, and find by trial before the printing light how long it takes to make correctly printed prints, on the grade of paper each of the standard negatives requires, at a fixed distance from the light.

When printing we will find that, no matter what the contrast of a negative may be, a thin negative (one of little density) will require only about one-half, and a dense negative will require about twice the length of exposure to the printing light that will be needed for making a correctly printed print from our standard negative of average density, while negatives that are very thin may need only about one-quarter and those that are very dense may need about four times the standard exposure.

The same standard negative should always be used with the grade of paper for which it was tested, when testing a new printing light or any new conditions that may arise in printing, as much more information will be gained by making tests with one negative only than if a different negative is selected each time a test is to be made.

Developing papers are coated with a gelatine emulsion made in much the same way as the film emulsion on which the negatives

are made, and the print is produced by means of exposure and development just as the negative is. Developing papers are much less sensitive to light than plates or films, consequently it takes longer for light to make an impression on developing paper than to make an impression on a film. On the other hand, developing papers develop much more quickly than films, and since the paper is less sensitive to light, a bright yellow light or very subdued electric light can be used in the room during printing, with safety. The way to test the safety of the light in the printing room is explained on page 13.

With paper as with film the density of the picture is controlled by the duration of the exposure and the development, but whereas with film the contrast is dependent upon the time of development, the contrast increasing as the development is continued, with paper the contrast is fixed by the maker, and after a few seconds the development does not change the contrast of the print at all but only affects the density of the deposit. This is illustrated in Figs. 1 and 2. In Fig. 1 we see that with increasing time of development, a film shows an increase in contrast, while in Fig. 2 it is clear that by prolonging development, after reaching a certain stage in the development of a print, there is only an in-



Fig. 1.—Growth of Contrast with Development.
Kodak Film.

crease in total density and no increase in contrast.

If, instead of being correctly printed, a print is over-printed it can be taken out of the developer before it is fully developed. Such a print will have less contrast than one that was correctly printed and fully developed. If a print is under-printed it will be useless to undertake to force it in development. The developer cannot make



Fig. 2.—Growth of Density with Development.
Velox Paper.

images out of silver on which the light has not acted, and forcing the development will, if carried beyond a certain stage, only result in fogging or staining the print. The best results can, of course, only be obtained by getting the exposure right and giving the normal time of development, which is from 15 to 20 seconds for Contrast and Regular Velox, and about 30 seconds for Special Velox. The matter of greatest importance for getting really first-class prints is, therefore, to expose the prints to the printing light for the right length of time.

If printing is dealt with in this way, if the negatives are classified before printing, and a test is made on a standard negative, it will be found easy to print a large number

of negatives on the various grades of Velox paper and to get first-class prints with normal development, without the necessity of guessing at the length of time to print.

It is best to develop Velox paper with Velox Liquid Developer or Nepera Solution, which are prepared expressly for Velox paper, or to make up the developer according to the formulas published on the instruction sheet that is packed with the paper, and to follow the instructions given.

When fixing prints, do not leave them lying on top of one another in the fixing bath. When many prints are being fixed in a small tray handle them frequently, and change their positions in the tray, so that each print will get its supply of fresh acid hypo.



IN THE PORT OF GENOA, ITALY

Made with No. 3A Folding Pocket Kodak



KING GEORGE AT A MILITARY REVIEW

Made with No. 3A Folding Pocket Kodak Shortly Before the War

USING FOCUSING CAMERAS AS FIXED FOCUS CAMERAS

A FIXED focus camera of the box type cannot be folded when not in use. It is always of the same length and breadth and thickness. Since its smallest dimension is always somewhat greater than the width of the film it uses, it is thicker than a folding focusing camera that makes the same size of picture.

For the photographer who wishes to combine the simplicity of manipulation of a fixed focus camera with the advantages afforded by the superior equipment of a small, compact focusing camera we published, in 1914, an article of which the following is a revision, explaining how this can be done. Since the original article appeared, requests for it have constantly been received from photographers and from dealers in Kodak goods. In 1914 there were eleven styles, while at the present time there are forty-two styles of focusing Kodaks, Premos and Brownies that can almost instantly be adjusted for use as fixed focus cameras.

Probably few of our readers are aware that the small focusing camera, owing to the many adjustments of which it is capable, can almost instantly be converted into a fixed focus camera, so that the user may be spared the necessity of judging distances and calculating exposures for making snapshots.

That the small focusing camera really possesses the advantages of the fixed focus camera without being subject to its limitations will be apparent when we have explained the optical principles on which the construction of the fixed focus camera is based.

Fixed focus cameras, being designed for making small pictures,

are fitted with short focus lenses. While in a fixed focus camera the lens is always used at the same distance from the film or plate, it must not be supposed that the lenses with which such cameras are equipped have a fixed or universal focus, which enables them to focus with equal sharpness objects situated at all distances from the lens, for such a lens never has been and, owing to an unalterable law of optics, never can be constructed.

All lenses, regardless of their size or type or focal length must be placed at a certain distance, known as the focal point, from the film or plate in order to make a sharp negative. This distance is determined by the focal length of the lens and the distance between the lens and the object it is focused on. When a lens is focused on a distant object the focal point is nearer the film or plate than when it is focused on a near-by object. To illustrate: In diagram 1, when the lens is focused on the distant object H so as to render a sharp

image on the film or plate X it must occupy the position A, which is nearer the film or plate than the position B, which the lens must occupy in order to render a sharp image at X of the near-by object E.

With a long focus lens, as shown in diagram 1, these focal points are comparatively far apart, while with a short focus lens, as shown in diagram 2, they are comparatively close together. The distance between these focal points depends solely on the focal length of the lens. For a lens whose focal length is three inches this distance is but a small fraction of an inch, while for a lens whose focal length is twelve inches this distance is considerably more than an inch.

Since the depth of focus of a lens, that is, the distance between the nearest and farthest objects that the lens focuses sharply depends, primarily, on the distance between the focal points and, secondarily, on the size of the stop or diaphragm used, and since the



Diagram 1

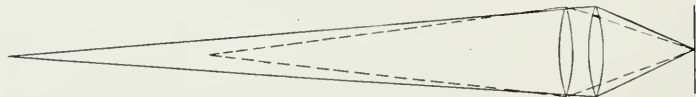


Diagram 2

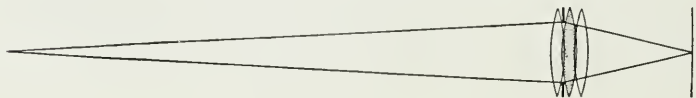


Diagram 3

distance between these focal points is less with short focus lenses than with long focus lenses, it follows that short focus lenses have the greatest depth of focus.

By slightly stopping down a short-focus lens we can find a position intermediate between these focal points, as shown in diagram 3, at which the lens will focus all objects that are from ten feet to an infinite distance from the camera.

These optical principles are applied in the construction of fixed focus cameras. The following table shows how to apply them to

the focusing Kodaks, Premos and Brownies that make pictures $3\frac{1}{4} \times 4\frac{1}{4}$ or smaller. Since focusing cameras that make pictures larger than $3\frac{1}{4} \times 4\frac{1}{4}$ are fitted with lenses of greater focal length than are used on fixed-focus cameras it is not advisable to adapt the fixed-focus principle to cameras larger than those we have listed.

By keeping the camera adjusted as shown by the table it will always be ready for making snapshots. By changing the adjustments all the more comprehensive equipments of the focusing camera instantly become available.

FOCUSING KODAKS, PREMOS AND BROWNIES THAT CAN BE USED AS FIXED FOCUS CAMERAS

NAME OF CAMERA	SET FOCUS	SET SHUTTER	SET STOP
No. 1 Autographic Kodak Jr., Achromatic Lens	25 Ft.	1/25 Sec.	Midway between 1 and 2
No. 1 Autographic Kodak Jr., R. R. Lens	25 Ft.	1/25 Sec.	Midway between 8 and 16
No. 1 Autographic Kodak Jr., <i>f.7.7</i> Lens	25 Ft.	1/25 Sec.	Midway between 11 and 16
No. 1A Autographic Kodak Jr., Achromatic Lens	25 Ft.	1/25 Sec.	Midway between 1 and 2
No. 1A Autographic Kodak Jr., R. R. Lens	25 Ft.	1/25 Sec.	Midway between 8 and 16
No. 1A Autographic Kodak Jr., <i>f.7.7</i> Lens	25 Ft.	1/25 Sec.	Midway between 11 and 16
No. 1A Autographic Kodak R. R. Lens	25 Ft.	1/25 Sec.	Midway between 8 and 16
No. 1A Autographic Kodak <i>f.7.7</i> Lens	25 Ft.	1/25 Sec.	Midway between 11 and 16
No. 1 Autographic Kodak Special	25 Ft.	1/25 Sec.	Midway between 11 and 16
No. 1A Autographic Kodak Special	25 Ft.	1/25 Sec.	Midway between 11 and 16
No. 3 Autographic Kodak R. R. Lens	25 Ft.	1/25 Sec.	Midway between 8 and 16
No. 3 Autographic Kodak <i>f.7.7</i> Lens	25 Ft.	1/25 Sec.	Midway between 11 and 16
No. 3 Autographic Kodak Special	25 Ft.	1/25 Sec.	Midway between 11 and 16
No. 2C Autographic Kodak Jr., Achromatic Lens	25 Ft.	1/25 Sec.	Midway between 1 and 2
No. 2C Autographic Kodak Jr., R. R. Lens	25 Ft.	1/25 Sec.	Midway between 8 and 16
No. 2C Autographic Kodak Jr., <i>f.7.7</i> Lens	25 Ft.	1/25 Sec.	Midway between 11 and 16

NAME OF CAMERA	SET FOCUS	SET SHUTTER	SET STOP
No. 2 Folding Autographic Brownie Achromatic Lens	100 Ft.	1/25 Sec.	Midway between 1 and 2
No. 2 Folding Autographic Brownie R. R. Lens	100 Ft.	1/25 Sec.	Midway between 8 and 16
No. 2A Folding Autographic Brownie Achromatic Lens	25 Ft.	1/25 Sec.	Midway between 1 and 2
No. 2A Folding Autographic Brownie R. R. Lens	25 Ft.	1/25 Sec.	Midway between 8 and 16
No. 2C Folding Autographic Brownie Achromatic Lens	25 Ft.	1/25 Sec.	Midway between 1 and 2
No. 2C Folding Autographic Brownie R. R. Lens	25 Ft.	1/25 Sec.	Midway between 8 and 16
Premoette Jr., No. 1 Achromatic Lens	Back Slot	1/25 Sec.	No. 1
Premoette Jr., No. 1 R. R. Lens	Back Slot	1/25 Sec.	Midway between 8 and 16
Premoette Jr., No. 1 <i>f.7.7</i> Lens	Back Slot	1/25 Sec.	Midway between 11 and 16
Premoette Jr., No. 1A Achromatic Lens	Back Slot	1/25 Sec.	Midway between 1 and 2
Premoette Jr., No. 1A R. R. Lens	Back Slot	1/25 Sec.	Midway between 8 and 16
Premoette Jr., No. 1A <i>f.7.7</i> Lens	Back Slot	1/25 Sec.	Midway between 11 and 16
No. 1A Premoette Senior R. R. Lens	25 Ft.	1/25 Sec.	Midway between 8 and 16
No. 1A Premoette Senior <i>f.7.7</i> Lens	25 Ft.	1/25 Sec.	Midway between 11 and 16
No. 3 Premoette Senior R. R. Lens	25 Ft.	1/25 Sec.	Midway between 8 and 16
No. 3 Premoette Senior <i>f.7.7</i> Lens	25 Ft.	1/25 Sec.	Midway between 11 and 16
3¼ x 4¼ Film Premo No. 1 Achromatic or R. R. Lens	25 Ft.	1/25 Sec.	Midway between 8 and 16
3¼ x 4¼ Pocket Premo C R. R. Lens	25 Ft.	1/25 Sec.	Midway between 8 and 16
Premo No. 12 R. R. Lens	25 Ft.	1/25 Sec.	Midway between 8 and 16
Premo No. 12 <i>f.7.7</i> and other Anastigmat Lenses	25 Ft.	1/25 Sec.	Midway between 11 and 16
No. 2 Folding Cartridge Premo Achromatic Lens	100 Ft.	1/25 Sec.	Midway between 1 and 2
No. 2 Folding Cartridge Premo R. R. Lens	100 Ft.	1/25 Sec.	Midway between 8 and 16
No. 2A Folding Cartridge Premo Achromatic Lens	25 Ft.	1/25 Sec.	Midway between 1 and 2
No. 2A Folding Cartridge Premo R. R. Lens	25 Ft.	1/25 Sec.	Midway between 8 and 16
No. 2C Folding Cartridge Premo Achromatic Lens	25 Ft.	1/25 Sec.	Midway between 1 and 2
No. 2C Folding Cartridge Premo R. R. Lens	25 Ft.	1/25 Sec.	Midway between 8 and 16



AN ALPINE VISTA

Made with No. 3A Folding Pocket Kodak

WHEN THE NORTH SIDE OF THE BUILDING IS IN SUNLIGHT

THE most pleasing picture of a building and its immediate surroundings is usually one that shows many gradations of light and shade. The side of a building which is partly in sunlight and partly in shadow shows more gradations of light and shade than it would if it was wholly in sunlight or wholly in shadow.

The most attractive side of many a building faces north, and in the northern hemisphere, during the winter months, this side receives no sunshine, while during the summertime it may be almost hidden from the best point of view, by heavy foliage.

Such a subject can best be photographed in springtime, just before the leaves come. From about April to September the sun rises north of east and sets north of west, and in the early morning or late afternoon it shines on the north side of buildings. Throughout the greater part of Canada and the United States the leaves on most deciduous trees do not fully unfold until sometime in May.

Early morning and late afternoon are especially favorable times for photographing buildings, for then the shadows are long, and long shadows are far more picturesque than short ones.

When photographing buildings be sure the camera is level. If it is pointed upward the building will be represented as tapering upward and leaning backward. When the vertical lines of the building are parallel with the right and left sides of the finder or ground glass the camera will be level and all the lines of the building will look right in the picture.

For a light colored building, when the sun is shining brightly, between 6 and 8 in the morning and 5 and 6 in the afternoon, during June and July, give an exposure of $\frac{1}{25}$ of a second, using stop 8 on rectilinear lenses or stop *f.11* on anastigmats. For a dark-colored building try $\frac{1}{25}$ of a second with the next larger (lower number) stop.

With the box type of camera, like those models of Brownies and Premos that have no bellows and do not need to be focused, and with focusing cameras that have stops marked 1, 2, 3, etc., make the pictures not earlier than 7 in the morning or later than 6 in the afternoon, by giving a snapshot exposure, using the largest stop for light-colored buildings, and for dark-colored buildings place the camera on a tripod or some other rigid support and make an exposure of 1 second, using the smallest stop.

KODAK ADVERTISING COMPETITION

THE 1917 Kodak Advertising Competition closes October 20th. Fourteen prizes, ranging from \$100 to \$750, are offered.

A circular explaining in detail the conditions under which the competition is being conducted will be sent on request.

Address CANADIAN KODAK CO., LIMITED
TORONTO, CANADA.

FOR THE ASSISTANCE OF OUR READERS

SINCE you first began making pictures you surely have found that as you have become more proficient you have become more particular about the quality of your work, and that pictures which you once thought perfect seem less so in the light of acquired knowledge. Do you know why they now do not wholly please you? If not, it is due to the fact you have learned how to detect mistakes but have not yet learned how to wholly avoid or correct them.

Do you wish us to help you? Would you care to have us criticise your photographs? If so, send us the prints, together with the negatives from which they were made, stating the name of the camera, the name and grade of the paper used for making the prints, whether the negatives were developed in the tank or in the tray, the time of day, the date and the light conditions prevailing when the exposure was made, the stop used and the exposure given; then we will gladly write you our opinion and will try to assist you in becoming more proficient in your work. The negatives and prints will be promptly returned and any assistance we may be able to render will be offered *free of charge*.

ADDRESS

"KODAKERY," CANADIAN KODAK CO., LIMITED
TORONTO, CAN.



**Belt Case
for
Vest Pocket
Kodak**

Built of tough, tan, sole leather, and fitted with a broad strap, through which the belt is passed.

Holds the camera firmly and securely, yet where it is instantly available, *and*—leaves a pocket free for other uses.

THE PRICE

Belt Case for carrying Vest Pocket Kodak . . . \$1.75

CANADIAN KODAK CO., LIMITED
TORONTO, CANADA

At your dealer's.

A Notable Addition to your Equipment

A thin, smooth, handsomely finished camera, surprisingly compact, yet so cleverly constructed as to offer every essential feature for making the best of pictures under all conditions of amateur photography, be they easy or difficult—a camera that provides the very limit of photographic efficiency.

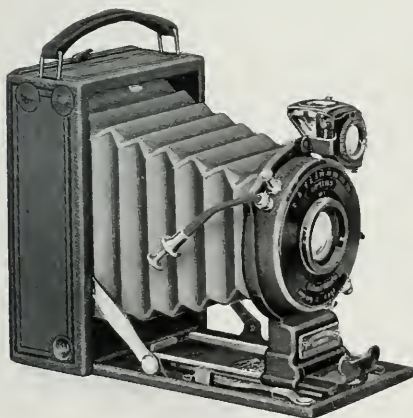
It makes $2\frac{1}{4} \times 3\frac{1}{4}$ pictures. It is at once a plate and a daylight loading film camera, as it takes films or plates with equal facility. It has a ground glass for accurate focusing and composition, or it may be used with focusing scale. It makes negatives of the quality that yield enlargements equal to contact prints, and it may be carried in a boy's pocket or a lady's handbag.

Ask your dealer to show you the

Premo No. 12

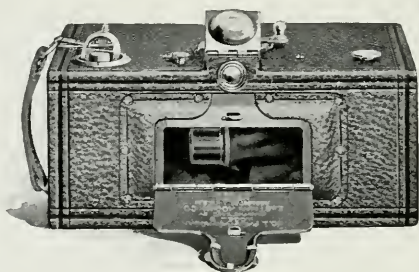
Furnished with R. R. or Kodak Anastigmat lens, $f.7.7$, and Kodak Ball Bearing shutter, or with Optimo shutter and anastigmats of the highest speed, including the Kodak Anastigmat, $f.6.3$, and the Bausch & Lomb Tessar Ic, $f.4.5$.

Prices, \$15.00 to \$56.00.



*Get a Premo catalogue
from your dealer, or write
us for a free copy.*

**CANADIAN
KODAK
CO., Limited
TORONTO
CANADA**



There's room for the rest of the view with the

Panoram Kodak

Stretches of landscape, out-door groups, clusters of buildings are easily embraced within the margins of the long, narrow, panoram picture. The lens which automatically swings on a pivot takes in the whole view at a single exposure.

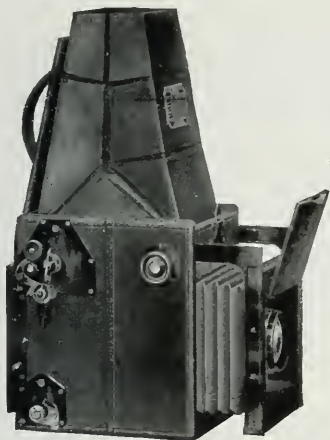
No amateur photographic equipment is complete without a Panoram Kodak—the ordinary type of camera, from its very construction, falls far short of panoram achievements.

THE PRICE

No. 1 Panoram Kodak, scope of lens, 112 degrees . . .	\$10.00
No. 4 Panoram Kodak, scope of lens, 142 degrees . . .	20.00

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The Revolving Back Graflex Junior

This little camera makes a picture $2\frac{1}{4} \times 3\frac{1}{4}$ on plates, roll film or film pack. It is fitted with the Graflex Focal Plane Shutter which gives automatic exposures from $1/10$ to $1/1000$ of a second, as well as time exposures of any duration. The Revolving Back Graflex Jr. is equipped with the Graflex reflecting feature, which enables you to see the image right side up, full size of picture, up to the instant of exposure.

This camera is fully described in the Graflex Catalog. May we send you a copy?

CANADIAN KODAK CO., LIMITED
TORONTO, CANADA



Close-ups of nature with a Kodak and

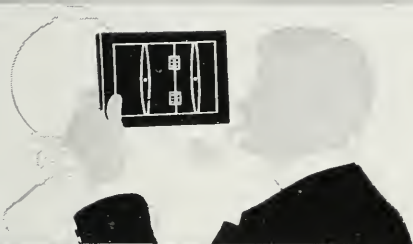
Kodak Portrait Attachment

With this efficient little device—it's just an extra lens—you can work so near your subject that intimate studies of flowers, ferns, birds-nests and the like are easily possible. And the resulting image is large enough to emphasize whatever there may be of interest or beauty in the subject photographed.

The price is fifty cents.

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Prints by Gaslight

Prints on

ROYAL VELOX

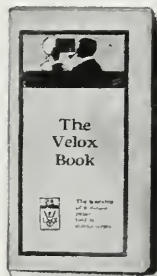
particularly lend themselves to Sepia re-development.

The rich, brown tone secured, owes much of its delicacy and softness to the cream tinted stock on which Royal Velox is coated.

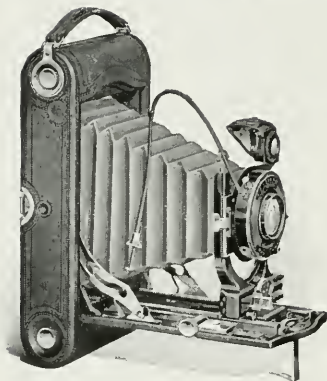
Read about Velox re-development in the Velox Book, a copy of which may be obtained free from your dealer or from us.

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KODAK CO., LIMITED
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"A Special in every sense of the word."



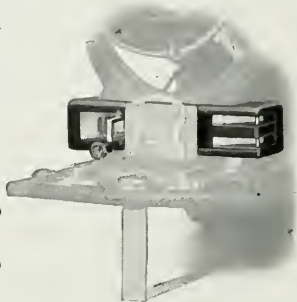
The New 3^A Autographic Kodak *Special* with Kodak Range Finder

THE KODAK RANGE FINDER. Something new to photography, a swift and sure means of determining the exact focus, is the Kodak Range Finder, a distinctive feature of the No. 3A Autographic Kodak *Special*. Three images, each a part of the subject to be photographed, appear in the Range Finder and by simply racking the camera front until the principal horizontal line of these three images is continuous, absolute focus is established.

THE LENS AND SHUTTER EQUIPMENT. The Optimo shutter with which the No. 3A Autographic Kodak *Special* is furnished has adjustable speeds from 1/300 of a second to 1 second assuring full photographic value from any high-grade, sharp-cutting anastigmat lenses with which the camera is listed.

THE PRICE

3A AUTOGRAPHIC KODAK SPECIAL	
With Kodak Anastigmat lens, <i>f</i> .6.3 and Optimo shutter	\$55.00
With Bausch & Lomb Kodak Anastigmat lens, <i>f</i> . 6.3 and Optimo shutter	66.00
With Bausch & Lomb Tessar Series IIb Anastigmat lens <i>f</i> .6.3, and Optimo shutter	77.00



DETAIL SHOWING RANGE FINDER

CANADIAN KODAK CO., LIMITED
TORONTO, CANADA

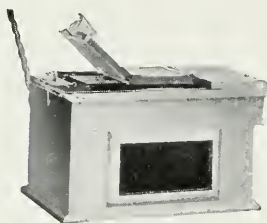
KODAKERY

A
MAGAZINE *for* AMATEUR
PHOTOGRAPHERS

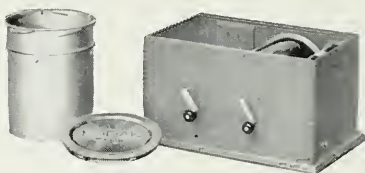


AUGUST 1917

CANADIAN KODAK CO., LIMITED.
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For Printing
Kodak Amateur Printer, \$6.00



For Developing
Kodak Film Tank, \$2.75 up

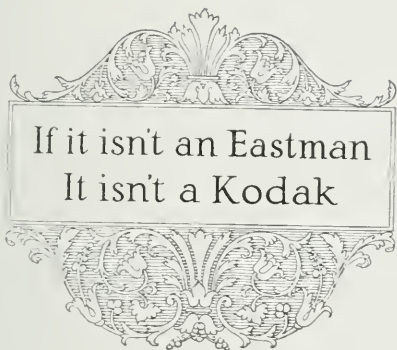
Kodak Film Tank *and the* Kodak Amateur Printer

Either one is well worth while in itself but in combination they make every amateur his own finishing department—they enable him to do the rest best.

Compactly built and self-contained, the Film Tank will readily go in a suit-case.

CANADIAN KODAK CO., LIMITED
TORONTO, CANADA

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If it isn't an Eastman
It isn't a Kodak



THE NURSE
Made with a Premo



PUBLISHED MONTHLY—YEARLY SUBSCRIPTION, 50 CENTS; SINGLE COPIES, 5 CENTS

VOL. IV

AUGUST, 1917

No. 10



IN THE EVERLASTING HILLS

Made with a Kodak

CLIMBING WITH THE KODAK

BY C. HAZEN TRAYVOR

SOME of us, belonging to the older generation, can remember climbing with photographic outfits that not only would

not go into the pocket, but that would not go into a trunk. You may fancy, then, how grateful we are when the realization sweeps



DOWN FROM THE HEIGHTS

Made with a Kodak

over us, like a mountain breeze, that we are now lightly armed and that our camera can go wherever we can go.

Climbing with the Kodak, in-

deed, is no longer climbing with a load but with a companion. And a companion that inspires and lightens us, like some cheery chap who is always saying, "Isn't that a



A SURGE OF THE ALPS
Made with No. 3A Folding Pocket Kodak



A LASSO STUNT
Made with a Graflex

stunning scene?" or "Did you ever see a plunge of hills to beat that?"

That donkey in the Rockies who used to like to slide me over his head, right in the midst of my studies through the finder, couldn't upset this companionship with the Kodak. With a little practice I was able to land squarely on my feet, Kodak and all.

In the Canadian Rockies, high

over Lake Louise, in the Alps, or in the lovely old Berkshires the steepest slopes have seemed less steep for having the Kodak along—and every treasure gathered adds wings. There you have the magic of the Kodak.

Your "shots" fetch something to you rather than send something away. And when memory gets busy your trophies whisper wonderful reminders.



Made with No. 3A Folding Pocket Kodak

When the greater part of the subject is sky and water give one-half the exposure needed for ordinary landscapes

AT THE SEASHORE

BY B. B. SNOWDEN

THE readers of KODAKERY who go to the lakes or the seashore this summer will be sure to take their cameras with them, and they will find the following suggestions worth heeding:

When the camera is not in use keep it in its carrying case. No camera, or any other instrument for that matter, is benefited by being left lying in the blistering sun or in the penetrating dampness which often rolls in from the water on a summer evening. Treat your Kodak with the consideration it deserves and it will continue to look and work like new.

Do not overlook the fact that the light on the water is intense, requiring short exposures or a small stop, or a combination of

both. One must remember that on the water the light comes from every direction, and when a large expanse of water and sky is photographed there is no absorption by dark objects, such as trees, buildings, etc., that are usually the objects we photograph in landscapes. The human eye soon adapts itself to the brilliant light on the water, but the sensitiveness of film or plate remains unchanged. Hence, to prevent over-exposure and consequent flatness in the negative the aperture of the lens or the length of the exposure must be proportionately reduced, and the negatives must be fully developed. As a general guide to exposure one may think of $\frac{1}{25}$ th of a second at $f.22$ (U. S. 32) as



When picturing sailboats, seek the beauty
of the filled sail

being about correct for an open beach or water scene when the sun is shining brightly between the hours of 8 A. M. and 4 P. M. With a fixed focus camera a snapshot with the second stop should give results.

If you can conveniently do so, by all means take along your de-

veloping tank and develop at least the first roll soon after your arrival. This procedure will serve to check you up on exposure, and insure your obtaining good negatives. If it is not convenient to include the tank in your baggage, take the first roll to a local finisher. In either case, keep a memorandum of stop and exposure and light conditions for this first roll of test exposures, as is very easily done if your camera has the autographic feature.

For obtaining cloud effects provide yourself with a Kodak Color Filter. This is necessary for getting white sails against a blue sky.

Don't try for too many "big" views. The vacationist at lake or seashore is always impressed by the vast expanse of water, and it is a natural impulse to try to record this impression with the Kodak. Some beautiful

pictures have been made with small hand cameras in this way, but it is very easy to let the idea run away with one. Do not neglect to photograph the little bits here and there. General impressions give breadth to pictures, but the human interest is mostly in the details.



Made with No. 3A Folding Pocket Kodak

When there are more dark than light tones in the scene, give the same exposure as for an average landscape

And, lastly, be careful that you do not misjudge distances in focusing with the scale. Students of psychology know that a given space looks larger filled with objects than it does when empty. For the same reason, distances on the water look shorter than they really are. Look out that you don't set the pointer at the 10-foot mark on the focusing scale when in reality it should be set at the 100-foot mark. Most of the pictures made from boats are of subjects that are more than 50 feet away, and for these the focus should be set at the 100-foot mark on the focusing scale.

Do not give the same exposure for cottages, landscape scenes, groups of people, etc., along the beach that you give for views across the water. Unless the subjects on the beach are far distant and receive the direct light from

the sky and also the light reflected by the water, they should be given the same exposure, with the same stop you would use for ordinary landscapes, that is, $\frac{1}{25}$ th of a second with stop 16, or, if a fixed focus box camera is used, an ordinary snapshot exposure between the hours of 8 to 4 in June, July and August.



When the greater part of your picture will represent sky and water use a Kodak Color Filter and give about three times the exposure you would give without it. Should the correct exposure without the filter be $\frac{1}{25}$ of a second with stop 32 (f.22), give the same exposure, with the stop set midway between 16 and the next lower number, *when the filter is used*.



GUTTED

A Snapshot made by daylight

ANSWERING THE FIRE CALL

BY ALAN BARRETT

IT was a good many years ago that a photographic club arranged with a local fire department to get fire calls so that one member at least, assigned in rotation, had prompt news of an opportunity to make valuable town records.

The fact is that to-day there is very little chance that a fire will occur anywhere out of range of one or more Kodaks.

Fascinating as day photographs are for their expression of swirling smoke, the night picture of a fire has a picturesqueness all its own. Now we get the leap of the flames themselves with a vividness which only the outer darkness could throw into relief.

The crackling of the fuel upon which the flames are feeding—a terrible sound when we are personally interested in the calamity,

as, for instance, when it is one's own house—adds a dramatic quality to the experience not soon to be forgotten.

At night little tricks of the flames that would not be detected by daylight are clearly to be followed. The conflict between fire and water, the battle for supremacy here and there in the silhouette of a doomed building, is a real drama of forces that often has a wonderful thrill.

A big fire, whether it rages in the light of day or during the hours of darkness, presents an ever-changing scene. We never can tell what its next spectacular disclosures are to be. It is therefore best, as soon as we arrive with our camera, to be ever ready, at a safe distance from the fire, with focus adjusted and shutter set, to make snapshots of the impressive



A DARK HOUR SPECTACLE

*Made at 1.35 A. M.; stop, 16; 1-25 sec.; with 1A Autographic Kodak; f.7.7 lens;
by W. B. Puckett*

spectacles as they are successively unfolded.

It is quite possible, with stop 8 (f.11) and an exposure of $\frac{1}{50}$ of a second, to obtain sharp pictures of falling walls, at a distance of 75 feet or more, when the sun is shining. This exposure should also record the smoke, the fire where it is outlined against a dark background and many details in the surroundings, provided the sun shines on the subject and the space between the camera and the subject is free from smoke. When the subject does not receive direct sunlight use stop 4 (f.8) and try a $\frac{1}{25}$ second exposure.

At night the sky and landscape are dark, and while we cannot photograph dark smoke against a dark background we can, nevertheless, make photographic silhouettes of the fire itself. This can usually be done when the flames are brightly outlined against the darkness, by giving a snapshot ex-

posure of $\frac{1}{25}$ of a second with stop 16.

When making snapshot exposures of fires with fixed focus cameras that have only one shutter speed the largest stop should always be used.



NEVER OIL THE SHUTTER

A PHOTOGRAPHIC shutter should never be oiled. It is especially constructed for working without lubrication and oil will always put it out of order. The only care a shutter needs is protection against dust, moisture and violent injury. If these precautions are observed it will usually work smoothly for many years. Should it ever fail to work satisfactorily it should be sent to the manufacturer for repairs.

THE FLASHLIGHT IN PHOTOGRAPHY



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FIG. 1

SHOWING
BY THE
AID OF
MOTION
PICTURES
WHAT
ACTUALLY HAP-
PENS
WHEN
THE EYES
ARE EX-
POSED
TO A
SUDDEN
CHANGE
IN ILLU-
MINATION

THE greater appreciation and increasing use of the flashlight shows that the photographer is quick to realize the possibilities of the use of what we may call home-made sunlight. A flashlight is practically a burst of bright sunshine. It has one great advantage over sunlight in that it can be produced in places where sunlight never penetrates. We can make our sunlight wherever and whenever we wish.

It is to be expected that the sudden production, in comparative darkness, of a flash of light as brilliant as sunshine must have a very considerable effect upon the eye—an organ which is as sensitive as it is wonderful. While the eye can accommodate itself readily to differences in illumination as great as a million to one—which is equivalent to bright sunlight out of doors and a dark night out of doors—the changes are usually made gradually. When a change in illumination of anything like this range is made suddenly some unusual effects must be produced upon the eye.

To find what these effects are some very interesting experimental work has been carried out by the Research Laboratory of the Eastman Kodak Company. It is well known that the eye seeks to protect itself against sudden changes of brightness. One way is by the involuntary contraction of the pupil of the eye, and a further protection is the closing of the eyelid by a wink. These are known as reflex actions and we have no control over them. A study of this



FIG. 2



FIG. 3

reflex action of the eye must be of considerable interest to the photographer who does flashlight work.

It has been found, by making careful experiments, that the reflex action of the eye can be photographed and actual measurements made of these movements. This is done by the aid of a motion-picture camera, which can be speeded up so that pictures can be made at the rate of thirty-two per second.

The motion pictures shown in Fig. 1 were made in a room well illuminated by daylight. After the eyes had adapted themselves to the daylight in the room the motion-picture camera was started and an instantaneous flashlight set off fairly close to the subject. While the pictures were made at

the rate of thirty-two per second, the actual exposures, instead of being $\frac{1}{32}$ of a second were, however, only $\frac{1}{64}$ of a second each, as the shutter was closed for half of the time, or $\frac{1}{64}$ of a second, while a new section of the film was moved into place for the next exposure. In the first three pictures, made before the flash was ignited, we see the eye in its normal state. The effect of the flashlight and the evidence of its closeness to the subject are shown by the over-exposure of the fourth and fifth pictures which get the *full* benefit of the flashlight. The full intensity of the light lasted for the time of two exposures and two $\frac{1}{64}$ second intervals and was, therefore, equal to about $\frac{1}{16}$ of a second.

The pictures shown in Fig. 1 disclose what actually happens when the eyes are exposed to a sudden change in illumination. The reflex action, by means of which the eye seeks to protect itself, is shown in the sixth, seventh, eighth and ninth pictures, where we see the eyes gradually close and open in a wink. In the tenth picture they are approaching normal again, though it will be one or two minutes before they will become fully normal, as in the first three pictures.

It will be noticed that the reflex action or wink did not begin until the third exposure *after* the flash had been ignited (the sixth picture in Fig. 1) so that the subject was illuminated by the flashlight for a little *more than the length of time needed for making two exposures and the time intervals between the exposures*, or a total of about $\frac{1}{12}$ of a second. The wink lasted for $\frac{1}{8}$ of a second, or a period of time during which the camera recorded four exposures. The time required for this reflex action to begin varies slightly with different people, but in no case was it found to be less than $\frac{1}{12}$ of a second. There is just a possibility that the natural wink of the eye may occur simultaneously with the flash, but this would have no appreciable effect on the resulting picture if the Eastman Flash Sheet be used, as the flash is not instantaneous, but spreads over an appreciable length of time.

An objectionable effect seen in some flashlight work, but not actually produced by the flash itself, is what is known as the

flashlight stare, so well reproduced in Fig. 2. This is produced by another of Nature's efforts to adapt herself to different conditions. Even as the eye, when subjected to a sudden increase in brightness, will close the iris and the eyelid to keep out the light, it will, when the illumination is reduced below normal, dilate the iris and, as is shown in Fig. 2, cause the eyelids and eye-brows to be raised.

Fig. 3 was made soon after Fig. 2, the eyes having been brought back to normal by directing the light from an electric lamp at the face, and producing an illumination approximating weak daylight, which had the effect of contracting the dilated pupils and drawing down the eyelids to their normal position, as usually seen in ordinary daylight. To avoid the flashlight stare, a light that approximates weak daylight must be maintained in the room; the eye must not be forced to adapt itself to the dimness of any dark shadows and care must be taken that the shutter is not opened for any appreciable time before or after the flash, in order to avoid a double image, made possible by the auxiliary daylight or lamplight should there be any movement of the subject or camera.

Flashlight exposures that are sufficiently rapid for portraiture can be made with the Eastman Flash Sheets, preferably in conjunction with the Flash Sheet Holder, this latter not only adding to convenience, but greatly assisting the efficiency of the flash by means of the white reflector back.

PHOTOGRAPHING PANORAMAS

How often, when viewing a broad expanse of beautiful landscape, have we longed for a camera that would picture just what we wanted of the scene before us, from the point of view we liked best.

A broad expanse of landscape is a panorama, and the only camera that can make a panoramic picture from the best point of view, without recording an excess of sky and foreground, is a panoramic camera.

There are two sizes of cameras that make panoramic pictures—the No. 1 Panoram Kodak and the No. 4 Panoram Kodak and both can be used with or without a tripod.

The lens on a Panoram Kodak is a meniscus achromatic, fitted with one stop. It is mounted in a barrel which swings while the exposure is being made, thus exposing the film in sections. The field photographed by the No. 1 Panoram Kodak embraces an angle of 112 degrees. It makes three $2\frac{1}{4} \times 7$ pictures on the 6 exposure rolls, and six $2\frac{1}{4} \times 7$ pictures on the 12 exposure rolls of regular $2\frac{1}{4} \times 3\frac{1}{4}$ (105) Kodak roll film.

The field photographed by the No. 4 Panoram Kodak embraces an angle of 142 degrees. It makes two $3\frac{1}{2} \times 12$ pictures on the 6 exposure rolls and four $3\frac{1}{2} \times 12$ pictures on the 12 exposure rolls of regular 4×5 (103) Kodak roll film.

These simple, yet thoroughly efficient panoramic cameras are provided with two exposure speeds—the slower exposure to be used for ordinary panoramic views, when

the sun is shining, and the faster one to be used for photographing distant landscapes and scenes consisting chiefly of sky and water, when the sun is shining brightly.

A greater variety of subjects is possible than is generally known, for not only can they be used horizontally for landscapes, street scenes, groups of buildings, etc., but they can as readily be used for making vertical exposures of such subjects as canyons, valleys and waterfalls. The height or depth of these from the restricted standpoint, which is often the only one available, makes them difficult if not impossible to portray satisfactorily with standard instruments of the regular pattern—at least in their entirety; either of the Panoram Kodaks will record everything from the highest peak of a towering snow-capped mountain to the lowest depths of the valley in the foreground. Such pictures, besides being a bit unusual, are decidedly pleasing.

Those of our readers who possess or intend to possess several Kodaks of different sizes should certainly include a Panoram Kodak in their equipment, for it operates in an unique field and one not covered by any other instrument.

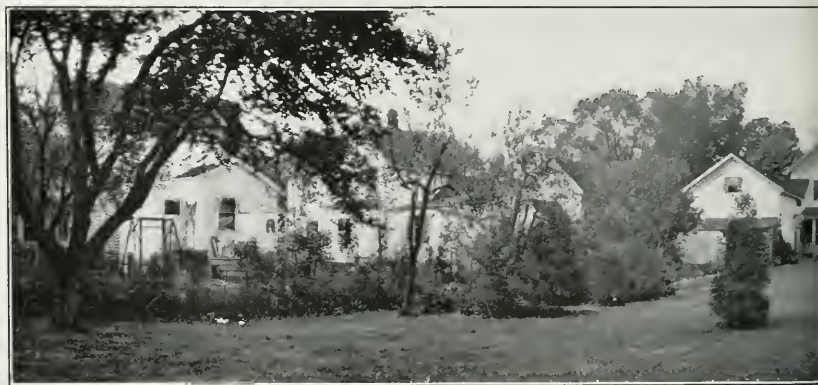
Panoram Cameras are specialists. They refuse to do the wide range of work that other kinds of cameras perform, but in their special field—the making of panoramic pictures—they stand without a peer.



A PANORAM AT WA



GRAZING SHEEP. MADE



THE HOMESTEAD. MADE
EXAMPLES OF



TON, D. C., U. S. A.



NO. 4 PANORAM KODAK.



NO. 4 PANORAM KODAK

ORAM PICTURES

MAKING SEPIA-TONED PRINTS

BY DR. C. E. K. MEES

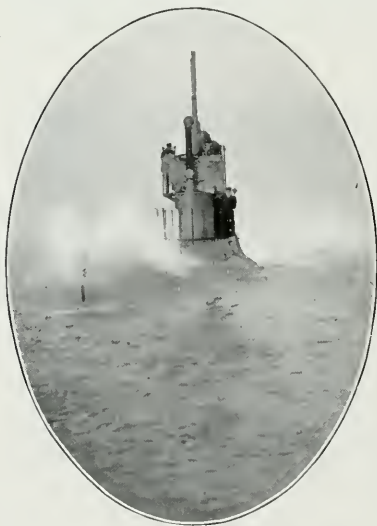
IN the earlier printing processes used by photographers—those in which the image was obtained by the continued action of light and which were toned by the deposition of gold from a toning bath—the prints obtained were in various shades of purple and brown, and these shades became so associated with photographs in the minds of the public that when the black and white prints made on Velox and bromide papers began to displace the earlier Solio and Aristotype prints, the general public would scarcely recognize them as “photographs” at all, and a demand soon arose for some method of toning the black images of bromide and Velox prints to a

brown or sepia similar to that of the gold toned printed-out papers.

It seems to be characteristic of mankind to want what they have not got, and it is interesting to note that with the earlier printing-out processes, which easily gave warm tones, chemists were anxiously working to get methods of obtaining black and white prints, while with the developing-out processes, which naturally give good black and white prints, photographers desired to obtain warm sepia and brown tones.

The processes for obtaining sepia prints from the black developed-out images all depend on one chemical reaction; namely, that by which silver bromide is converted into silver sulphide. Silver sulphide is a dark colored, almost black, substance well known to the housekeeper—if not by name—as the tarnish which appears on silverware after it has been some time in the air, the surface of metallic silver being attacked by sulphur compounds in the air, which generally come from the products of combustion of gas in the cooking range.

When any chemical substance can be produced by the interaction of two other chemical substances in solution the question as to whether it *will* be produced depends upon whether it is more or less soluble than the substances which can form it. Silver sulphide is less soluble than silver bromide, so that when silver bromide is treated with a solution containing



A SEA TERROR
Made with a Graflex



OUR STILE

Made with No. 3A Folding Pocket Kodak



SIGNING UP



IN THE SWIMMING HOLE

Made with No. 2C Brownie

sulphur in a free form it is changed into silver sulphide and the silver sulphide is deposited in its place. On the other hand, metallic silver, such as that which forms the image in a developed print, is less soluble than silver sulphide and consequently we cannot change it into silver sulphide by simply treating it with a solution containing free sulphur, but if in this solution we have some substance which will dissolve metallic silver, then we can change the metallic silver itself into silver sulphide. It is on these principles that the sulphur toning processes are based.

One toning process depends upon changing the silver image of the print back into silver bromide. Now, we know that silver is obtained from silver bromide by reduction, just as iron is got out of iron ore, and, therefore, we can get back silver bromide from silver

by oxidation, which is the reverse process to reduction. If we use any solution which will oxidize silver and have potassium bromide present in the solution, the silver image will be turned into silver bromide.

The usual way to do this is to treat the black print after fixing and washing with a solution containing potassium ferrieyanide, which is an oxidizing agent, and potassium bromide, and this turns the black silver image into a yellowish-white image of silver bromide which is scarcely visible, so that the process is called "bleaching" since the black silver turns into white silver bromide, and then after washing, this silver bromide is treated with a solution of sodium sulphide, which re-develops the print and turns it into the brown silver sulphide which gives us our sepia-toned



A VIGOROUS RETURN

Made with a Graflex

print. So, to make a sepia Velox print by this method, we treat it with the "bleaching solution," which turns the silver into silver bromide, and then "re-develop" this, as it is called, in a solution of sulphide, which converts the silver bromide into silver sulphide and gives us our sepia print. This method does not cause any loss of detail in the print. The right proportions of chemicals for making sepia Velox prints by this reliable method are contained in each tube of Velox Re-Developer.

There is another method of obtaining sulphide toned prints, which is somewhat simpler, though it takes much longer to work the process. We have seen that we cannot turn silver directly into silver sulphide by a solution containing free sulphur unless we have a solvent of silver present in

the solution. It so happens that hypo is to some extent a solvent of silver, and also that with a weak acid, hypo gives free sulphur. Alum is a weak acid and it also has the valuable property of hardening the print, so if we put the print which we wish to tone into a solution containing hypo and alum, the silver will slowly be changed into silver sulphide and the print will be toned brown. This change goes on very slowly at ordinary temperatures, but by heating the solution it goes much more rapidly, so that if we heat a bromide or Velox print in a solution containing hypo and alum, we shall get a good sepia tone at the end of ten or twenty minutes without any further difficulty, the only objection being that the bath, like all baths containing free sulphur, and like the sodium sul-

phide used for redeveloping in the other toning process, smells rather unpleasantly. This method of making sepia prints is known as the hypo-alum method. It is not recommended for amateur photographers because, unless the bath is well balanced, it will remove detail from prints.

Equally good results in sepia toning cannot be got with all papers but a great deal depends on the development of the print. Royal Velox is especially recommended for sepias. To get good sepias, the exposure of the print should be the least that will rightly record what the negative contains, and the print should be *fully developed*. An over printed and an under-developed print will always give weak, yellowish tones when compared with one in which

development has been carried out thoroughly, which will give a strong pure sepia. It is important to remember this, as two prints which may look alike as black and white prints will tone differently if they have not been developed to the same extent. A negative that has deep shadows with fairly strong highlights will make a more pleasing sepia print than one that has weak shadows.



Too much bromide in the first developer produces warm sepia tones on re-developed Velox prints. The darker sepias are obtained by using only enough bromide for keeping the print from fogging in the first development.



SIMPLE WONDERS
Made with No. 2 Brownie

HOW TO MAKE GOOD NEGATIVES

A good negative is the result of approximately correct exposure and correct development.

Everyone who will follow the printed instructions that are furnished with Eastman tanks will obtain correctly developed negatives. No experience is needed, because, when the user of the tank develops films by the Kodak tank method he unconsciously applies the experience that competent investigators have acquired from years of research and practical work. Through the use of the tank correct development can be made a habit.

The photographer who guesses at exposures often guesses wrongly. He should stop guessing and at once begin to form the habit of making the kind of exposures from which good negatives can be obtained. By remembering two important facts he will appreciate how easily this habit can be ac-

quired. These facts are: (1), the latitude of Eastman film makes it possible to rightly record the various light intensities, that are reflected by the subject photographed, with exposures of different lengths, so that any length of exposure that does rightly record these different light intensities is a correct exposure, and (2), the multitude of outdoor subjects that are ordinarily photographed can be grouped into four general classes, so that the exposure which is approximately correct for any one of these classes will be equally correct for all the subjects that can be listed in that class.

By working in accordance with these facts and by using the same shutter speed, with a different stop for each of the four classes of subjects, we can compile an exposure table which is so brief that it can easily be memorized. This table will read:

Extremely Distant Landscapes, in sunshine	stop U. S. 32 or <i>f.22</i>
Ordinary Landscapes, in sunshine	stop U. S. 16 or <i>f.16</i>
Street Scenes, in sunshine	stop U. S. 8 or <i>f.11</i>
Portraits, in the shade of a building, not under trees or roofs.	stop U. S. 4 or <i>f. 8</i>

Set the shutter at $\frac{1}{25}$ second for all the subjects listed.

Stops on Rectilinear lenses have the U. S. markings, while stops on anastigmat lenses have the *f.* system markings.

On cloudy-bright days the exposures should be about three times as long, and on cloudy-dull days the exposures should be from six to eight times as long as those stated in the table.

This table applies to outdoor exposures that are made later than 2 $\frac{1}{2}$ hours after sunrise and earlier than 2 $\frac{1}{2}$ hours before sunset.

While these exposures are not the most accurate that can be made, the fact that the light is stronger at noon than during earlier and later hours, yet experience has



A CHINESE HILLSIDE STREET
Made with No. 3A Folding Pocket Kodak

demonstrated that the latitude of Eastman film will so compensate for the difference in the strength of the light between the hours mentioned that good printing negatives can be obtained.

By memorizing this brief table we will be able to instantly determine what exposure to give, and then by developing the films, according to the printed instructions, in a Kodak film tank, we should have no difficulty in obtaining negatives of a great variety of outdoor subjects from which good prints can be made.

This table applies only to cameras that have the stop markings and shutter speed markings mentioned.

Among other subjects that can be included are:

In the Extremely Distant Land-

scape class; bird's-eye views, snow scenes in which detail in trees, buildings, etc., is not wanted, and marine views in which sky and water occupy the greater part of the picture.

In the Ordinary Landscape class; practically all landscape subjects excepting distant landscapes, in which no prominent dark objects are nearer than, say, 30 feet from the camera.

In the Street Scene class; buildings of which the pictures will show one side in sunlight and one side in shadow, and landscapes with trees or bushes occupying most of the foreground.

In the Portrait class; scenes where heavy foliage, in sunshine, comprises the greater part of the picture.



SEA FARERS

Made with Vest Pocket Kodak

FOR THE ASSISTANCE OF OUR READERS

THE first number of KODAKERY, published 46 months ago, contained an invitation to readers to send us negatives and prints for criticism. Many instantly availed themselves of the opportunity of learning how to improve their work. With every passing month an increasing number of readers submitted negatives and prints for our inspection.

From inquiries that were constantly being received it became evident that not only the beginners in photography, but advanced workers as well, often desired individual instruction in photographic processes with which they were not familiar.

This method of assisting photographers—by giving special attention to the needs of the individual worker—is performing a function that can be performed in no other practical way. The amateur who is confronted by a photographic problem submits it to us. We undertake to solve it for him.

When you desire information regarding any branch of amateur

photography tell us exactly the kind of work you wish to undertake, and if it is work that is to be done with a camera, state the name and size of camera you wish to use.

When sending prints for criticism also send the negatives from which the prints were made. It is only by examining the negatives that we can tell whether they were rightly or wrongly exposed and rightly or wrongly developed, and it is only by comparing a print with the negative from which it was made that it can be determined whether or not the print is the best the negative can yield.

We wish to know the name and grade of paper on which the print was made, the month and the time of day when the negative was exposed, the stop and shutter speed used, and whether the negative was developed in the tank or in the tray.

Prints and negatives sent for criticism will be promptly returned.

These services will be rendered free of charge.

ADDRESS ALL COMMUNICATIONS,

KODAKERY, CANADIAN KODAK CO., LIMITED,

TORONTO, CANADA.

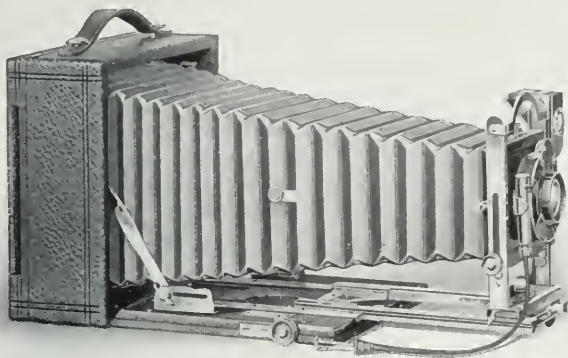
The 1917 Kodak Advertising Competition

in which cash prizes aggregating \$3,000.00 are offered for pictures suitable as illustrations in Kodak advertising, is now well under way.

Talk to your Kodak dealer about the contest or send for circular giving full details.

Contest closes October 20, 1917.

CANADIAN KODAK CO., LIMITED
TORONTO, CANADA



For the simplest or the most difficult work

Premo No. 9

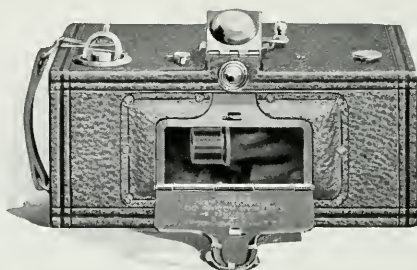
With focusing scale and Premo Film Pack Adapter, the Premo No. 9 is a compact, convenient, daylight loading film camera for ordinary amateur photography.

In addition, with its double extension, swing bed, bellows capacity, rising and falling front, reversible back, ground glass focusing facilities, and accommodation of either plates or films, it is an instrument of the highest efficiency for special or exacting work of practically any character. Copying, enlarging, architectural and telephoto work, portraiture, scientific research are some of the fields in which this camera is fully competent.

Regularly fitted with Kodak Automatic Shutter and Rapid Rectilinear lens at prices as follows: 4 x 5, \$32.00; 3¼ x 5½, \$32.00; 5 x 7, \$37.00. Supplied also with anastigmat lenses as required.

*Premo catalogue free at the dealer's, or mailed
by us on request.*

CANADIAN KODAK CO., LIMITED
TORONTO, CANADA



As you glance through the pages of this magazine, certain pictures stand out from the rest by reason of their very unusualness. These are pictures of the panoram type and their size, shape and scope make them distinctive.

Such pictures are easily made with a Panoram Kodak whose lens, swinging on a pivot, commands the whole view at a single exposure.

TYPE PRICE

No. 1 Panoram Kodak, scope of lens, 112 degrees	. .	\$10.00
No. 4 Panoram Kodak, scope of lens, 142 degrees	. .	20.00

CANADIAN KODAK CO., LIMITED
TORONTO, CANADA

At your dealer's.



Brownie Enlarging Camera

It's as easy to make enlargements with this instrument as it is to make pictures with a Kodak.

THE PRICE

V. P. Kodak Enlarging Camera, for $3\frac{1}{4} \times 5\frac{1}{2}$ enlargements from $1\frac{3}{8} \times 2\frac{1}{2}$ negatives	\$1.75
No. 2 Brownie Post Card Enlarging Camera, for $3\frac{3}{4} \times 5\frac{1}{2}$ enlargements from $2\frac{1}{4} \times 3\frac{1}{4}$ negatives	1.75
No. 2 Brownie Enlarging Camera, for 5×7 enlargements from $2\frac{1}{4} \times 3\frac{1}{4}$ negatives	2.00
No. 3 ditto, for $6\frac{1}{2} \times 8\frac{1}{2}$ enlargements from $3\frac{3}{4} \times 4\frac{1}{4}$ negatives	3.00
No. 4 ditto, for 8×10 enlargements from 4×5 negatives (will also take $3\frac{1}{4} \times 5\frac{1}{2}$ negatives)	4.00

CANADIAN KODAK CO., LIMITED
TORONTO, CANADA

At your dealer's.

Sepia-toned prints are easily secured with

Velox Re-Developer

The original black and white print emerges from the re-developer a rich, warm brown—a particularly happy tint for landscapes and portraits.

Velox Re-Developer is put up in two forms—bottle and tube. The four ounce bottle will tone approximately 300 post-card size prints or their equivalent—each of the tubes, which may be purchased separately or in cartons of twelve, will re-develop about four dozen post-card size prints.

THE PRICE

Velox Re-Developer, per 4 ounce bottle	\$.50
Ditto, 2 ounces	.30
Velox Re-Developer Tubes, per package 12 tubes	.85

CANADIAN KODAK CO., LIMITED
TORONTO, CANADA

At your dealer's.



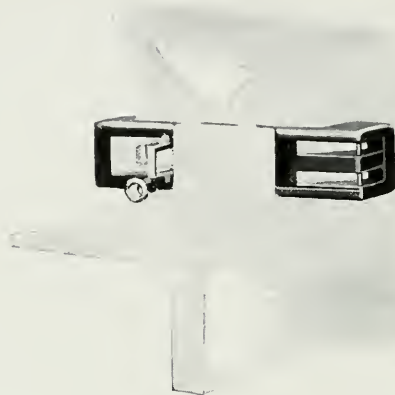
Prints by Gaslight

VELOX

That Velox is a simple-working paper means something of course, but far more important is the fact that it makes the utmost of every amateur negative. A good negative deserves Velox, others demand it.

CANADIAN KODAK CO., LIMITED
TORONTO, CANADA

At your dealer's.



The Kodak Range Finder

By means of this device, built into the standard beneath the camera shutter, guess-work focus is eliminated—the Kodak Range Finder finds the focus, finds it quickly and with scientific precision.

Fitted on the 3A Autographic Kodak *Special*—an *exclusive* feature.

The Kodak Range Finder is described in detail in the 1917 Kodak Catalogue recently off the press. Your dealer will give you a copy—or we will.

THE PRICE

No. 3A Autographic Kodak Special, with Kodak Range Finder, Kodak Anastigmat Lens <i>f</i> .6.3 and Optimo Shutter . . .	\$55.00
No. 3A with Bausch & Lomb Kodak Anastigmat Lens <i>f</i> .6.3 and Optimo Shutter	66.00
No. 3A with Bausch & Lomb Tessar Series IIB Anastigmat Lens <i>f</i> .6.3	77.00

CANADIAN KODAK CO., LIMITED
TORONTO, CANADA

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KODAKERY

A
MAGAZINE *for* AMATEUR
PHOTOGRAPHERS



SEPTEMBER 1917

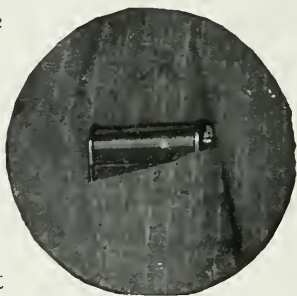
CANADIAN KODAK CO., LIMITED.
TORONTO, CANADA.

Your other camera

A Vest Pocket Kodak

(Pictures $1\frac{5}{8}$ x $2\frac{1}{2}$ inches)

Although you have a grand-father's clock in the hall, a Dresden clock on the drawing-room mantel, an alarm clock in your bed-room, a chronometer in your motor car and an eight day clock on your office desk, you always wear a watch.

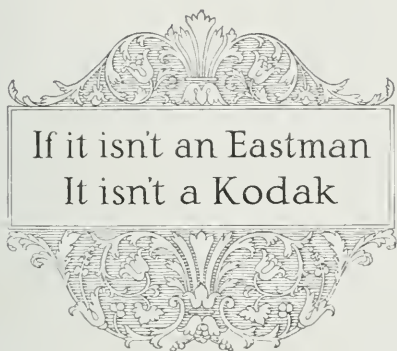


Similarly you may have and carry other cameras—you *wear* a Vest Pocket Kodak. It's the accurate, reliable, unobtrusive little Kodak that you can have always with you for the unexpected that is sure to happen.

The Vest Pocket Kodaks are \$7.00. The V. P. K. *Specials* with Anastigmat lenses are \$11.50, \$20.00 and \$22.50.

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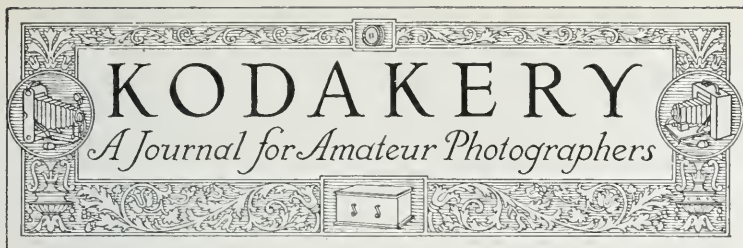
CANADIAN KODAK CO., LIMITED
TORONTO, CANADA



If it isn't an Eastman
It isn't a Kodak



THE BOBBY AND THE DRUM MAJOR
Made with No. 3A Folding Pocket Kodak



PUBLISHED MONTHLY—YEARLY SUBSCRIPTION, 50 CENTS; SINGLE COPIES, 5 CENTS

VOL. IV

SEPTEMBER, 1917

No. 11



RIFLE PRACTICE IN TEXAS

THE KODAK IN WAR TIME

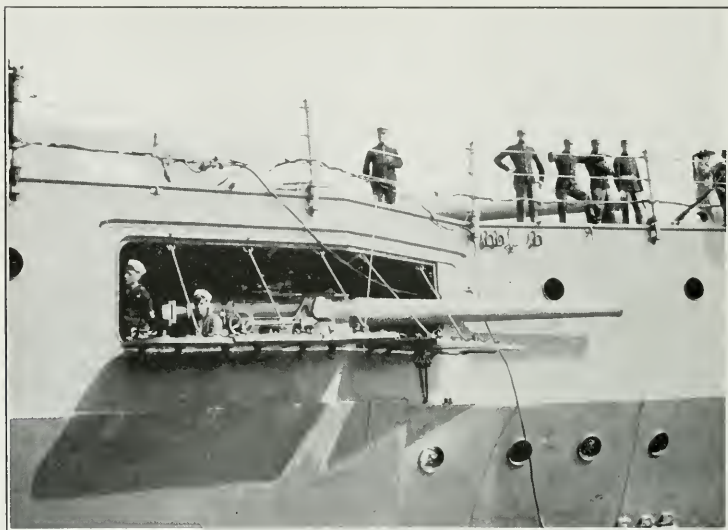
BY ROBERT ALLISTEB

From *American Kodakery*

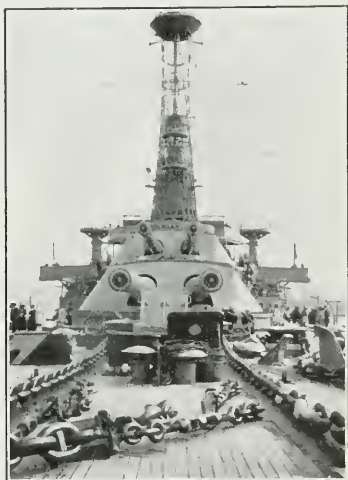
THOSE words, War Time, really cover three years, and they never meant so extraordinary a drama, never meant so many actors, as they have meant during all that time. I have before me many pictures reflecting that part of the drama for which Europe is the stage, as well as many that

have behind them the shadow of the mighty struggle beyond the sea.

But I am thinking in particular of war time in the United States. It would be selfish to think of one's own country and not of others, yet it is natural and reasonable that one's own country should be in the



THE RIFLES OF A DREADNAUGHT



A FORMIDABLE QUARTET

foreground of one's interests at all times, and of one's sympathies also.

To begin with, war time makes so many striking pictorial changes. There is the great burst of flags, and nothing lends so much animation to a scene as the flutter of the nation's symbol. The flowing lines of the Stars and Stripes, never twice making the same beautiful effect as the breeze lifts, and flings, or caresses their significant markings, are themselves always a picture, and every picture is heightened and made vivid by their presence.

Then there is the unusual frequency of uniforms, not so spectacular as the plumed and gold-braided uniforms of the past, yet uniforms that mean the business



A RELIC OF EARLIER DAYS



ARTILLERYMEN ON THE TEXAS BORDER



FIRING A 12-INCH MORTAR, DISCHARGING A PROJECTILE
WEIGHING 1,046 POUNDS

of war as we read of it, and consequently uniforms that stir us beyond any other sort. Guns and ships take on a new and thrilling interest. The sea means more than ever it meant at any time in history. The very sky becomes the background for a new kind of spectacle of which the ancients never dreamed, for flocks of steel birds, spitting fire and shell, now use clouds for hiding places, and perform feats of swift daring that astonish the world. We no longer can look at the sea without thinking of hidden monsters of metal, and of ships they have sent to the bottom. We no longer can look at the sky without thinking not only of the battles on so many horizons but of the certain future of peaceful air transit, of post routes in the blue.

All of these things instinctively draw our hands toward the Kodak, which to me, and I am sure to most of us who love photography,

is a means of completing a thought. To see a new spectacle, or a spectacle with a new meaning, is to wish to perpetuate it in a print.

Every parade is an invitation. Every rumbling artillery train suggests so much that we wish for the visible elements. Every freight car carrying a great gun is as inviting as an old gun with children romping about its silent bulk. There is a story in every sign of the great struggle toward that final peace in which the brotherhood of the world will, like the modern game hunters, do their shooting with nothing more harmful than a camera.

There is abundant opportunity in these things for a display of skill. One must think quickly when the center of interest is an aeroplane. I know of nothing more exciting than getting a point of vantage for a parade picture—and holding the point of vantage in a crowd—and making the right exposure at the right moment. There



AIRPLANE ACTIVITIES

always seems to be a best moment. As a matter of fact there usually is, in all subjects, a choice of best, and accidents of selection often help much. But the wish to get the best moment is always with us, adding the zest of the "sporting chance."

Because we cannot expect the privilege of photographing some things and some places that were free to us in times of peace a special interest attaches to pictures that had been made when the war break came. But we are not dependent on all the old privileges. There is "plenty left," for it is not actual war, or even implements of war, not forts or ships or arsenals that alone constitute the picturesqueness of war time. The Red Cross workers, the flag makers and flag sellers, the drilling lads of college and department store and factory, the troop trains, the reunions, the good-byes, the presen-

tations and a thousand other phases of the great war time all deserve to be and will be made part of the pictorial history of this eventful year. It is a year of pictorial opportunity—and I sincerely hope another such opportunity may never again come to us!

A last word: Label every picture (if you have an "autographic" the process will be easy) with the "when, where and what" that are so important to your future comfort. Don't believe that you will remember anything but the beauty of the scene. You are very likely to forget the "which and where." Take my word for it and make a specific memorandum.



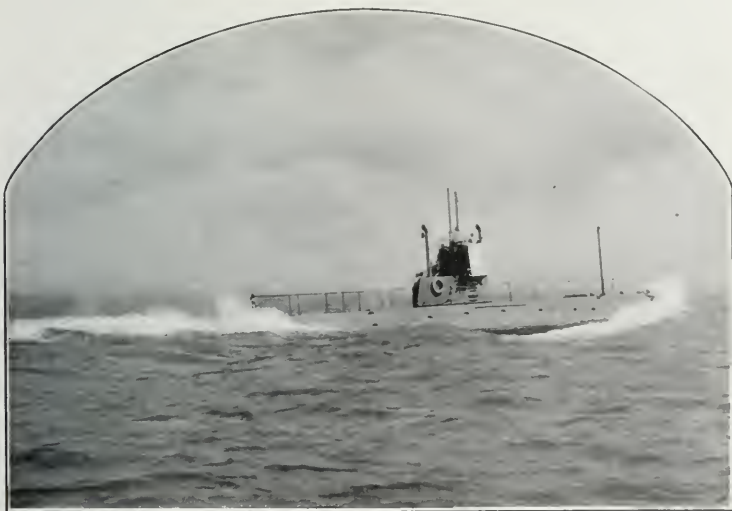
Autographic Film records the data—at the time.



A TWILIGHT LANDING



LATENT POWER OF DESTRUCTION



THE DREADED SUBMARINE



METHOD OF USING THE "WILD FLOWER CAGE" ON THE GROUND

PHOTOGRAPHING WILD FLOWERS

BY DR. H. D. HOUSE, STATE BOTANIST, NEW YORK

Illustrated by the Author

MOST of our wild flowers wilt so quickly after they are picked that it is best, whenever possible, to photograph them in their natural habitats, without removing them from the plants.

In making such photographs out in the field, for the purpose of illustrating a work on the wild flowers of New York, we found that the success of our work depended on the solution of two problems,—keeping the flowers from moving when the wind was blowing and obtaining pictures showing the flowers isolated from their surroundings.

Both of these problems were solved by enclosing the flowers

(without removing them from the plants) in a cage, the sides and top of which were made of a transparent cellulose compound. The back of the cage was made of light wood before which plain cardboard was placed as a background for the flowers. The front of the cage consisted of an open frame around which a piece of black oilcloth was tacked. This was made to funnel down over the front of the camera. The entire arrangement of camera and the cage enclosing a flower is shown in the illustration on this page. The bottom of such a cage may be made of cardboard (which is lighter than wood) provided with openings through which the

stems of the plants can pass into the cage. It should be hinged so as to open forward. When wooden legs are fitted to the bottom of the cage it can be raised to any height that is needed for photographing tall plants.

When this cage is placed over a flower the flower will remain perfectly quiet, and the cardboard background behind the flower will isolate it from its surroundings so the photograph will show nothing but the flower against a plain ground.

By placing a heavy stone in the cage, to keep it from trembling, we successfully photographed the most delicate plants and flowers with the wind blowing 30 or 40 miles an hour, and we found that our best pictures were usually obtained on clear windy days. Quiet days, especially if hot and humid, gave us trouble by raising the temperature inside the cage so rapidly as



The Pink Lady's Slipper, photographed in the cage

to cause delicate plants to wilt, even when they were attached to their roots, unless we left the bottom or the top of the cage slightly open.

When the sun shone on the cage we pinned a piece of white muslin over it to keep direct sunlight from shining on the flowers. Strong sunlight casts strong shadows, which should be avoided when photographing flowers whose delicate beauty can best be pictured when they are illuminated by a soft diffused light. When conditions permitted we always set up our cage so the strongest light reached the flower diagonally from the front.

The cage we used was large. It was designed to provide for all emergencies. Its sides and front and back measured about 2 ft. square and its total height, to the top of the peak of the roof, was about 3 ft. Both the back and



Cerastium Arvense, one of the Chick-weeds; photographed in the wild flower cage, with a strong wind blowing



Common Yellow Daisy, photographed in the cage

front folded down over the bottom while the sides came off separately. When folded, the cage made a package about 3 ft. long, 2 ft. wide and 5 inches thick.

After this package was fitted with two straps and a handle, made in the style of a shawl strap, it could easily be carried in the hand.

I believe that a smaller cage would meet all the amateur's requirements, since in only a very few cases did we need so large a cage as the one described.

Those of us who have photographed flowers out of doors know

that both flowers and leaves often tremble enough to blur the picture, even when the air seems to be quite still, and that the air is usually stirring considerably when it is convenient for us to be out in the fields. Such a cage as Dr. House has described would permit us to photograph flowers, out in the open, at any hour; we would not need to wait for the wind to abate, nor to make several trips afield for the pictures we wish to obtain.

A cage 12 to 15 inches square, with sides and top of extra heavy celluloid, would fold very compactly and be easy to carry.

THE EDITORS.

When photographing flowers give the same exposure you would give for an outdoor portrait.



Wild Red Lily, photographed in the cage



Meadow Rue, a difficult subject, photographed in the cage with the wind blowing

FLOWERS AND THE COLOR FILTER

YELLOW is a brighter color than blue, but when no color filter is used yellow photographs darker than blue. Through a

Kodak Color Filter yellow is made to photograph lighter than blue. These facts should be remembered by all who photograph flowers.



A REMINISCENCE OF WINTER

Made with No. 321 Folding Pocket Kodak



A BELGIAN FISHING BOAT

Enlarged from a Vest Pocket Kodak negative

TRAY OR TANK?

TANK development is simple and its results are certain, because they depend solely on conditions which anyone can control.

Tray development is not so simple and its results are not so certain because they are influenced by conditions which cannot readily be controlled.

The photographer who develops negatives in the tray must do so in a room that, when the dark-room lamp is extinguished, is totally dark. If any light, other than that coming from a safe dark room lamp, enters the room while the negatives are being handled, at any time before they are in the fixing bath, the negatives will be fogged. A slightly fogged negative cannot yield as good a print as one that is



LOW WATER

Made with No. 3A Folding Pocket Kodak

free from fog, while a badly fogged negative is worthless.

In order to be sure of obtaining correctly developed negatives by tray development it is necessary (1) always to use the same kind of developer, (2) always to have the developer at the same temperature, (3) to use a dark-room light that is always of the same brilliancy, and (4) to be able to accurately judge, from acquired experience, and by developing negatives often enough, when to stop development.

In tray development these four factors *must* be kept constant in order to insure correct development. The first two we have mentioned can easily be kept from varying, but it is practically impossible for the amateur photographer to keep the other two factors constant.

In the tank development of roll films no dark-room is needed. The

entire process can be performed in full daylight. When Eastman Film Tank Developer Powders are used in an Eastman film tank there are but two factors to consider: These are (1) the temperature of the developer, and (2) the length of time to develop.

Since any amateur photographer, whether experienced or inexperienced in the development of negatives, and whether he develops negatives daily or only at rare intervals, can easily keep these two factors constant, he can, if he uses an Eastman film tank and carefully follows the instructions that are furnished with the tank, obtain correctly developed negatives every time.

Strange as it may seem, the tank can produce good printing negatives from incorrectly exposed films, provided the errors in exposure were not hopelessly excessive.

THE FUN

FROM A
KODAK ALBUM



IDE OF THE SEA





*Fig. 1.—Made by light from Arc Lights outside and Ceiling Lights in the Building.
2½ minutes; stop, 16.*

OUTDOOR NIGHT PICTURES BY ELECTRIC LIGHT

INQUIRIES from our readers indicate an increasing interest in the night photography of outdoor subjects that are illuminated by electric light. The data under Figs. 1 and 2 of our illustrations explain how these pictures were made. Mr. Harry Lee tells us, in the following letter, how he obtained the splendid result shown in Fig. 3.

The light emanating from an electric arc lamp and that which is concentrated in the beam of an electric search light illuminates a comparatively small area. All objects that are within this area will be strongly lighted at night, while all that are outside of this area will be lighted faintly or not at all.

Especially in the picturing of architectural detail that is illuminated by electric light the photographer will not need to seek, nor study how to emphasize, the point of greatest interest, for that is created by, and likewise emphasized by, the light.

The field of outdoor night photography has been but little explored. It offers opportunities for obtaining many unique and pleasing pictures that could not be made by daylight.

May 2, 1917.

Dear Sirs,—Two years ago, in Kingston, Jamaica, B. W. I., I bought a No. 3A Folding Kodak. While I was there I made over 400 exposures that I brought home undeveloped. After they were developed I found



Fig. 2—Enlarged from $2\frac{1}{4} \times 3\frac{1}{4}$ negative, by L. de Ojeda; made with No. 1 Special Kodak. Lights are concealed on building itself. Time, 15 min.; f.11.

I had but two failures, one of which was a double exposure. My camera has been thrown around, has been out in rain and snow and been overboard. Last month, with a company of players supporting Miss Marie Doro in "Hearts Desire," directed by Francis J. Grandon, I was sent, as a member of the cast, to St. Augustine, Fla., to film the exterior scenes with a motion picture camera, and I took my Kodak along. I snapped everything, making over 350 exposures in all kinds of lights and under all kinds of conditions, and sent the pictures back to our publicity department. For this work (publicity) all the photographers carry a large expensive camera along to take "stills," but I jumped in with my Kodak and caught the people unawares and while in action, with a shutter speed of $\frac{1}{25}$ to $\frac{1}{100}$ of a second, and got very few blurs. So good did the publicity manager think my Kodak prints that he sent

over 74 of them to newspapers, in preference to the big ones.

It was considered necessary for the artistry of the picture to take some scenes at night in the open, which is ordinarily done with very great candle power are lamps and flares. While waiting for rehearsal I set my Kodak on the running board of one of our motor cars about 35 feet from the groups in the open street, with the shutter set for a bulb exposure. In the window of the house was one 250 C. P. Mazda lamp and to the left and behind the Kodak were two more 250 C. P. lamps. The night was black; alongside of the camera an auto search light was playing directly on the group. I opened the diaphragm wide, called the boys to hold, pressed the bulb and counted two, and here is the result. (See Fig. 3.)



Fig. 3—Made with No. 3A Kodak; by the light of an auto search light and three 250 C. P. Mazda Lamps.

I used Eastman speed film and obtained a beautiful picture where everyone told me I would have nothing. The Cinematographer did not attempt to get a "still," and when he took his movie he had 16 minute flares, and there were also twenty oil-soaked torches on the scene. My Kodak picture was taken before these extra lights had been fired. The group was in front of a house which is 250 years old. We altered the front a bit to make it fit our story.

If more of the companies knew of the wonderful work an Eastman 3A Kodak can do they would give up experimenting with large, bulky cameras and equip each company with a No. 3A.

Very truly yours,

Care of Famous Players Co.,
New York.

HARRY LEE.



INTENSIFYING NEGATIVES

BY DR. C. E. K. MEES

IN the article in this series which dealt with choosing a printing paper we saw that it was necessary to use a paper whose scale fitted the negative. By the scale of the paper we mean the ratio between the exposure which will just produce a tint on the paper and that which will produce the heaviest black of which the paper is capable. For instance, we may find with a given paper that if we give one unit of exposure we shall just get a visible tint and that as we increase the exposure the blackness of the image on the paper will increase until, when we have given twenty times as much exposure as we gave at first, the paper will develop up quite black and no further increase of exposure will make it any blacker. We should then say that the scale of that paper is about 1:20, and such a paper is Special Velox. Regular Velox will give its whole scale with

an increase of exposure of only ten times, that is, ten times the minimum exposure which will produce a deposit will give the strongest possible black on Regular Velox, and on Contrast Velox the same result can be obtained with only five times the minimum exposure, so that if we have a negative in which the light transmitted through the clear parts is five times as much as that transmitted through the densest deposit, then, although this negative will look thin and flat, it will be exactly adapted to printing on Contrast Velox.

But sometimes we get negatives which are even flatter than this; if we developed them in the tray perhaps we were deceived in judging the density and we underdeveloped them or possibly the subject itself was very flatly lighted, as often happens when the subject is an extremely distant

landscape or a view across a large body of water, and from such negatives we cannot get a bright print even on Contrast Velox. Sometimes, also, we may not have Contrast Velox on hand and may wish to use Special or Regular Velox. In all these cases it is convenient to have a means of increasing the contrast of the negative, and the method by which this is done is the chemical process commonly called "intensification."

of density we must either deposit some other material on the silver, so as to add something to the image, or we must change the color of the image so as to make it more non-actinic and capable of stopping more of the light which affects the printing paper.

There are many different substances which can be deposited upon the image. If, for instance, a negative is treated with a silvering solution particularly adjusted, the

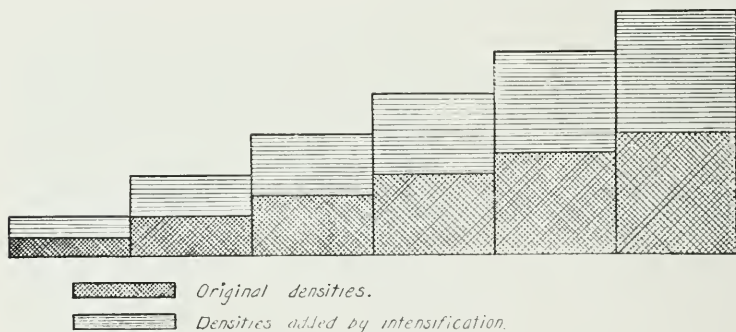


FIG. 1

In order to increase the contrast we must, of course, increase all the separate steps of density occurring in the negative, and not only must we increase them but the increase must be proportional to the steps of density already existing; that is to say, we must multiply them all by the same amount if we are to retain correct gradation. Fig. 1 shows a number of different steps of density before and after intensification, all the densities having been multiplied by the same amount or increased in the same proportion.

In order to produce this increase

silver will be deposited on the image and will increase its density; but this is very difficult to do, and it is more practical to intensify negatives by depositing, not silver, but mercury upon them.

The Eastman Intensifier is a solution containing mercury which will be deposited upon the negative immersed in it, and since the deposition is regular, it can be watched and the gain of density observed so that the intensification can be stopped at the right point. While the mercury method is still the most popular for intensifying negatives it has never been



FIG. 2

Print from negative that was cut in two. Right side of negative intensified; left side not intensified.

wholly satisfactory, because mercury intensified negatives are apt to undergo changes that affect their printing quality after a time.

A recently discovered method of intensifying a negative is to bleach it in the Velox Re-developer and then re-develop the bleached image with the sulphide solution used for obtaining sepia-toned prints. By this method the image is changed from silver to silver sulphide, which has a brownish-yellow color and is much more opaque to actinic light than the original silver image, so that a negative treated in this way will show much more contrast than before treatment. This method has proved very satisfactory and it is believed that re-developed negatives will prove as

permanent as re-developed Velox prints.

It must be understood that intensification is only suitable for the increase of contrast; it cannot improve a negative which is seriously under-exposed; no amount of intensification can introduce detail which is not present before the intensification is commenced; but occasionally intensification will enable us to adjust the scale of contrast of a negative so that better prints can be obtained than are possible without the intensifying treatment.



Contrast Velox—for flat negatives.

ENLARGING WITH A HAND CAMERA

EVERY focusing Kodak, and every other kind of focusing hand camera from which the back can be removed, can be used for making enlargements of any size desired from negatives that are not larger than the films or plates the camera uses.

For making enlargements with a hand camera a dark room, in which there is a window through which the unobstructed light from the sky can be reflected, is needed, but aside from the camera the entire enlarging equipment can be made by the amateur.

This equipment consists of a wooden frame (Fig. 1), which is fitted to a board (A in Fig. 2), with an opening in both frame and board of about the same size and shape as the back of the camera bellows, a white reflector C in

(Fig. 2) and a copy board or easel (Fig. 3) for holding the paper on which the enlargement is to be made.

The width of the sides of the frame (A Fig. 1) should be about twice the thickness of the camera—the thickness of the camera being its smallest dimension when it is closed. The space B in Figs. 1 and 2 represents a groove in which the

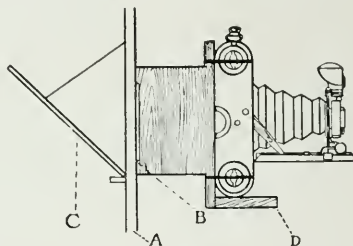


FIG. 2

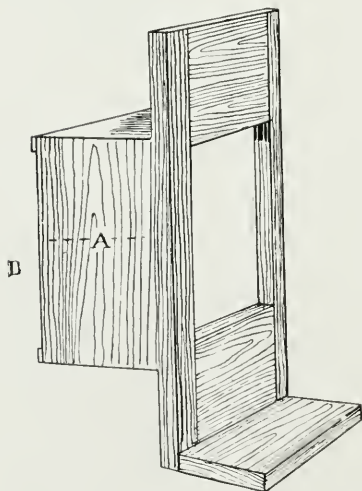


FIG. 1

negative holder, consisting of two clean, flawless pieces of glass that are a trifle larger than the negative, is placed.

The board with frame attached is fitted in an *open* window, and such parts of the window area as are not occupied by the board must be blocked up with some light-proof material, such as wood, heavy cardboard or opaque cloth, so the only light that can enter through the window is that which passes into the camera through the opening in the frame. See Fig. 3.

The camera, supported by the shelf at the bottom of the frame (D Fig. 2) should be held in close contact with the frame. The easiest way to insure this is to use a couple of the broad, heavy rubber bands that stationers carry,

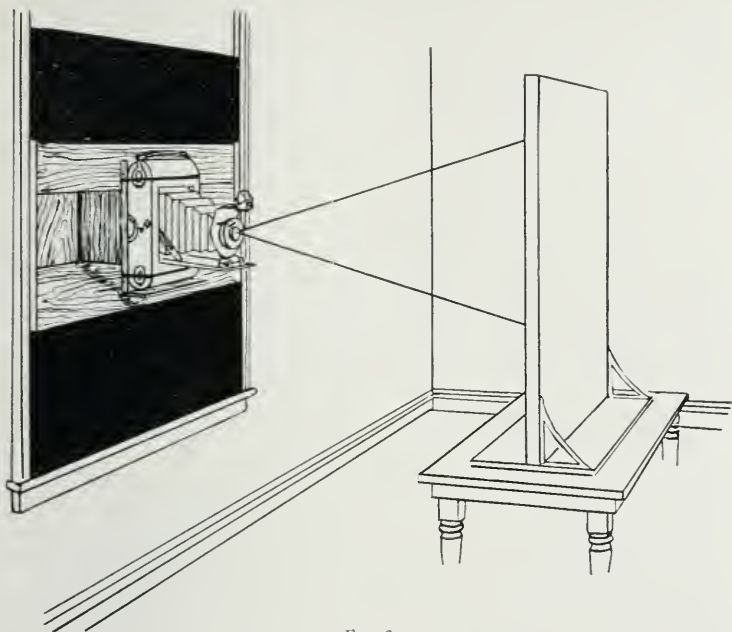


FIG. 3

The joints between camera and frame should be light-tight. If they are not, a dark shawl or a dark cloth should be laid over the joints.

In making enlargements it is necessary that the negative should be uniformly illuminated, and to insure this the reflector, which is placed outside the window, at an angle of 45 degrees, for reflecting the light from the sky through the opening in the frame, should be about three times as wide and three times as long as the opening in the frame. The writer has tried many kinds of reflectors and has found clean white cardboard, that is free from gloss, the most satisfactory.

The easel, which may consist of an ordinary drawing board fitted with a base so it will stand upright, may be placed on a table, as shown in Fig. 3.

The edges of the negative should be attached with gummed paper to an opaque mask and the mask must be of the same size as the glasses between which the negative is placed, so that the only light that can enter the camera is that which passes through the picture area of the negative. Any light that is allowed to pass through the glasses outside of the picture area of the negative is apt to fog the enlargement. Masks can be cut from the black paper in which Velox and Bromide papers are

packed. Eastman Mask Charts are, however, more convenient, as they are accurately ruled, thus insuring the cutting of masks with perfect right angles.

After the masked negative is placed between the glasses the glasses should be fastened together at opposite ends with gummed paper so the negative will lie perfectly flat.

By placing the glasses holding the negative in the groove B (Fig. 2), so the negative will be upside down, with the emulsion side (the dull side) of the negative facing toward the lens, a right side up image of the negative will be projected to the easel. With the lens wide open and the dark room closed, so no light other than that passing through the negative and lens can enter the room, the size of the enlargement desired can be accurately focused on a sheet of white paper pinned to the easel.

The negative and the easel must be parallel to each other. If they are not some parts of the enlargement will be out of focus.

The size of the enlargement is determined by the relative distance the easel is from the lens—the greater this distance the larger the picture—and the accurate focusing is done by moving the lens backward and forward on the bed of the camera.

After a sharp focus has been obtained the lens should be stopped down to its *smallest stop* and a Kodak Color Filter, *not a Sky Filter*, placed over the lens. A dim yellow light will now be projected to the easel, and the paper on which the enlargement is to be

made can be safely handled for a few moments in this weak yellow light. After the enlarging paper has been pinned in the same position that the white paper occupied on the easel the lens stop is opened to about stop 16, the color filter is removed and the exposure made. After the exposure has been made the shutter of the camera is closed and the enlargement developed.

The exposure to be given can be determined by cutting a full length strip of the enlarging paper an inch or two wide, pinning this diagonally across the picture area on the easel and making trial exposures.

To do this cover $\frac{3}{4}$ of the strip with a piece of cardboard and expose the uncovered $\frac{1}{4}$ of the strip for a certain length of time, then move the cardboard so the $\frac{1}{4}$ that was exposed and also $\frac{1}{2}$ of the part that was covered will be uncovered and make another exposure for the same length of time as the first, finally, remove the cardboard entirely and make a third exposure on the entire strip, also for the same length of time as the first. The strip will now have received 1, 2 and 3 units of exposure. This strip should be developed for the length of time recommended in the instructions furnished with the paper used. The section that looks just right, after the strip is fixed, received the correct exposure. If the whole strip looks too light all the exposures were too short, while if the whole strip looks too dark all the exposures were too long. The remedy in either case is obvious—to expose another strip for a different length of time.

The equipment we have described is simple and thoroughly efficient for making enlargements by daylight. It can be made by any one who is handy with tools.

The writer has made such equipments out of old shipping cases.

Next month we will discuss the special advantages of this kind of enlarging apparatus.



FOR THE ASSISTANCE OF OUR READERS

THE first number of KODAKERY, published 47 months ago, contained an invitation to readers to send us negatives and prints for criticism. Many instantly availed themselves of the opportunity of learning how to improve their work. With every passing month an increasing number of readers submitted negatives and prints for our inspection.

From inquiries that were constantly being received it became evident that not only the beginners in photography, but advanced workers as well, often desired individual instruction in photographic processes with which they were not familiar.

This method of assisting photographers—by giving special attention to the needs of the individual worker—is performing a function that can be performed in no other practical way. The amateur who is confronted by a photographic problem submits it to us. We undertake to solve it for him.

When you desire information regarding any branch of amateur

photography tell us exactly the kind of work you wish to undertake, and if it is work that is to be done with a camera, state the name and size of camera you wish to use.

When sending prints for criticism also send the negatives from which the prints were made. It is only by examining the negatives that we can tell whether they were rightly or wrongly exposed and rightly or wrongly developed, and it is only by comparing a print with the negative from which it was made that it can be determined whether or not the print is the best the negative can yield.

We wish to know the name and grade of paper on which the print was made, the month and the time of day when the negative was exposed, the stop and shutter speed used, and whether the negative was developed in the tank or in the tray.

Prints and negatives sent for criticism will be promptly returned.

These services will be rendered free of charge.

ADDRESS ALL COMMUNICATIONS,

KODAKERY, CANADIAN KODAK CO., LIMITED,

TORONTO, CANADA.

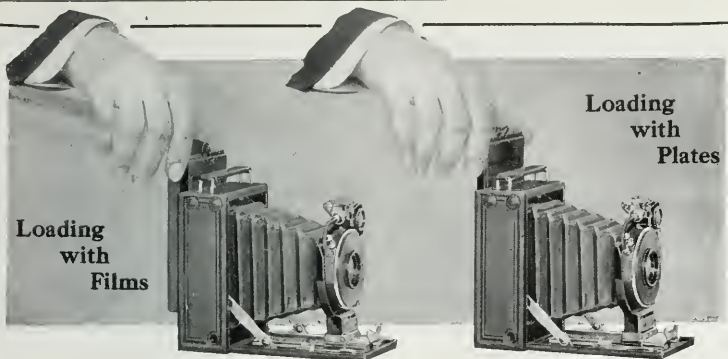


Look for this seal on the chemical container—and find it.

It means that the chemical or chemical preparation so branded has completely satisfied experts paid to find flaws.

CANADIAN KODAK CO., LIMITED
TORONTO, CANADA

At your dealer's.



Really two cameras in one

PREMO No. 12

And it is such a small, such a thoroughly capable one, too. It is at once a plate or a daylight loading film camera. One method may be employed as easily as the other. It's just as the user chooses.

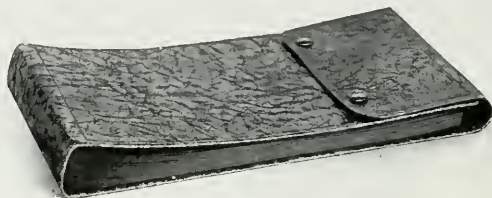
Focusing and composing may be done by use of finder and focusing scale, or at any time, for absolute accuracy the ground glass screen is easily used with either film or plates.

The camera makes $2\frac{1}{4} \times 3\frac{1}{4}$ pictures, it measures $1\frac{5}{8} \times 3\frac{1}{4} \times 4\frac{5}{8}$ inches, it weighs but 24 ounces, but it is so cleverly constructed that it will accommodate a three-hundredth of a second shutter, and the best and speediest of anastigmat lenses, including the Kodak Anastigmat *f.6.3*, and the B. & L. 1c Tessar *f.4.5*. Also furnished with Kodak Ball Bearing shutter and either Rapid Rectilinear or Kodak Anastigmat lens, *f.7.7*. Prices, \$15.00 to \$56.00.

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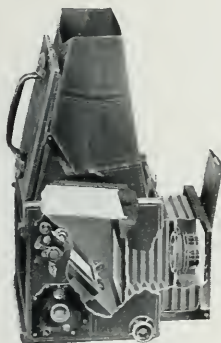
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GRAFLEX CAMERA



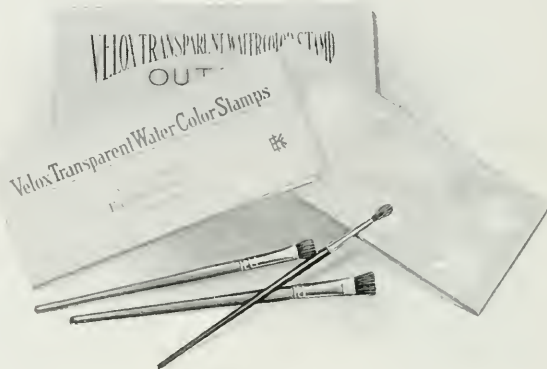
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you see a brilliant, *full negative size* image of the subject you are about to photograph. As you advance or recede from the subject, watching the changing composition and expression, *accurate focus* is constantly maintained by a slight adjustment of the focusing button, then—a pressure of the shutter release and the desired pictorial effect is secured *instantly*.

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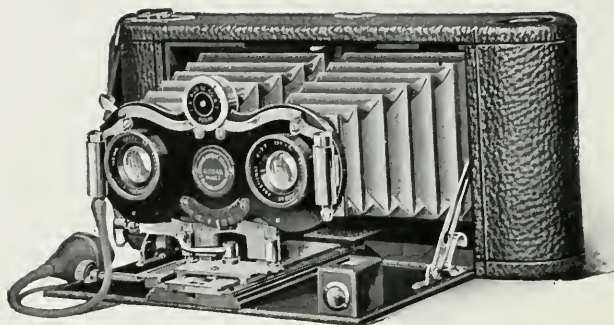
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A good negative deserves it,
a bad negative demands it.

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Black Sole Leather Carrying Case, - - - - -	3.50
N. C. Film Cartridge, 6 exposures, for Stereo (No. 101),	.60
Ditto, 3 exposures for Stereo, - - - - -	.30
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KODAKERY

A
MAGAZINE *for* AMATEUR
PHOTOGRAPHERS



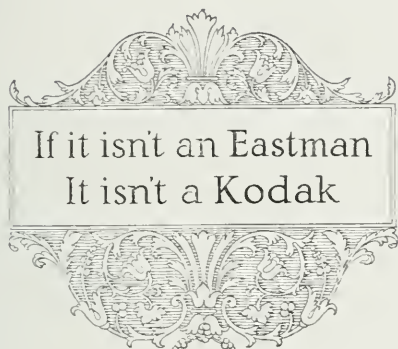
OCTOBER 1917

CANADIAN KODAK CO., LIMITED,
TORONTO, CANADA.

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If it isn't an Eastman, it isn't a Kodak



If it isn't an Eastman
It isn't a Kodak



A NOTABLE GROUP

*David Lloyd George, Sir Douglas Haig, Marshal Joffre and
M. Thomas, French Minister of Munitions*

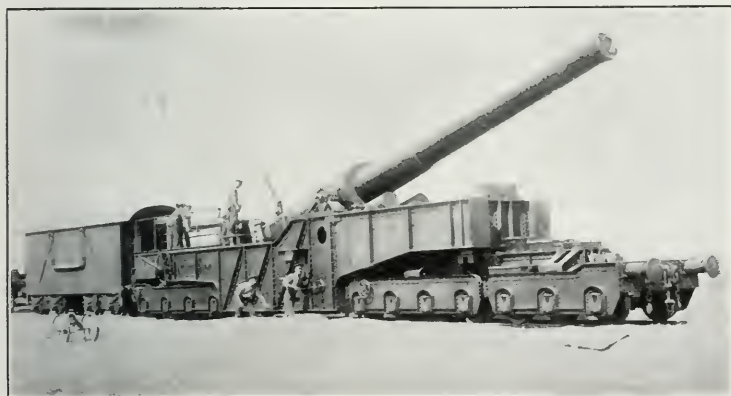


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VOL. IV

OCTOBER, 1917

No. 12



ONE OF THE BIG GUNS ON THE BRITISH FRONT

THE KODAK'S SERVICE IN WAR

BY ROBERT ALLISTER

Illustrated with Photographs made at the Front

IX more than a figurative sense the Kodak has become part of the enginery of war. When it was declared that this was to be a war of machinery it was scarcely to be guessed how important a part the camera was to play among the implements of the conflict.

Take the one case of the aeroplane. The airman's eyes are one of the biggest factors in the war.

Old theories of tactics have been utterly set aside by reason of these eyes in the air. But the airman must not only see, he must, wherever he can, record what he sees, with the camera. These air photographs are laid beside the commanding general's charts. They help give deadly accuracy to attack and to every phase of preparation.



ARTILLERY DRIVERS CLEANING UP HARNESS

One of the striking illustrations of the intimate part the camera plays in the war is furnished by the fact that an airman who destroys a bridge by the aid of one of those frightful bombs, as tall as a man, is supposed to bring back an air photograph proving the destruction he has wrought. The submarine captain often makes a photograph of the ship he torpedoes to aid in identifying the craft, and by way, also, of proving the details of his official report.

Then the camera works in the clouds and in the sea, riding thousands of miles under the sea in the course of its picturesque and grimly useful career.

Each of the governments at war is making photographs, not

only for present utility in war manœuvres, but for historical reasons. The Great War will be the most photographed conflict in history.

Most of the Kodak's experiences, so far as this war is concerned, must belong to secret history until the war is over. for numerous as are the pictures we see, these do not equal the number that are of necessity a part of the secret record of the overwhelming event.

Yet those we see are rich in interest. Often enough, surely, they are depressing. Their power to convey the terrible effects of destruction is asked of them in the interest of humanity. To say a village was wiped out makes no such impression as may be conveyed by the Kodak image. Thus



LOADING A TRENCH MORTAR, CALLED BY THE "TOMMIES"
A "FLYING PIG"

the Kodak has helped those who preach patriotic endeavor by showing the literal effects of war.

Happily, there is a cheerful side to war photographs. Soldiers at play, soldiers laughing in the very shadow of the trenches, testify to the fact that gloominess is no help to efficiency. Commanders in the field have encouraged amusements as helping to lift the strain of prolonged effort and hardship. For the same reason they have welcomed, officially and personally, pictures of the lighter side of the soldier's life. The same is true on the warships, when the severe tension of alert service needs the alleviation of sport in every reasonable way.

One interesting side of war photography, for which the Kodak is again and again to be thanked, is seen in the pictures of the war's leaders. Old Marshal Joffre's bristling white mustache gives us a real thrill. Haig, Lloyd George, Petain, and General Pershing (whose name the French have so much difficulty in pronouncing) all "look good" no matter how frequently lens and film carry them to our eyes. The human side of the war, its fighters big and little, its doctors and nurses and ambulance drivers, its mess tables and apothecary shops, its hospital beds and impromptu headquarters, its card tables, and little gardens and miniature theatres at the very

brink of the firing lines—all these and thousands of other human signs tell a story which it will take a century to put into type, yet which the alert Kodak is recording in a most vivid and understandable way.

The magnitude of the war machinery is made very vivid by pictures showing this machinery in comparison with the human units that operate it. Everything about war to-day may well seem to be ponderous. Here and there, or where a snapshot shows the men leaping out of the trenches for a charge, we get a glimpse of the alertness and purely individual daring of which no amount of machinery may make it possible for war to do without. No batch

of war pictures can fail to impress us with the truth that war never before had such variety—and the completed record will show that the Kodak's story is even more diverse than we have imagined. Meanwhile, the faithful Kodak is "on the job." Like the men who carry it, it is facing countless dangers in its own service to mankind. We shall await with eagerness each new chapter of its picture story.



Since photographic films and plates are affected by moist heat they should be developed as soon as it is practicable after exposure, especially when the weather is damp.



COMING THROUGH A FRENCH WOOD



HUTS BUILT IN
OLD TRENCHES



MR. RABBIT IN BED

Made with a Premo

WILD ANIMAL PHOTOGRAPHY

BY HOWARD TAYLOR MIDDLETON

TO the readers of KODAKERY who have never experienced the joys of wild animal photography I have this to say: Lose no time in making your debut in

this glorious sport if you desire to get the utmost satisfaction from your Kodak.

There is no reason why you should journey into the wilderness



PORTRAIT OF MOTHER SQUIRREL

in order that your camera game bag may be filled with trophies of the chase. I obtained the majority of the pictures illustrating this article within a stone's throw of my home. The red squirrel pictures were procured on trees within sight of the house and the only accessories used in addition to a Premo camera and tripod were a spool of thread and a walnut for the mother, and an Eastman Universal Tripod Clamp and some thread for the youngsters. In making preparations for the former picture I nailed a short section of limb to the trunk of a black walnut tree at the

height of the tripod, and ran a thread from camera shutter lever to a nut which was laid upon the limb as bait. After focusing the camera and inserting plate holder, I departed for a period of probably three hours. Upon my return I discovered the thread broken and bait gone. After developing the plate I found thereon the image of Madam Chickaree in a characteristic pose.

There was great fun, yes, and some thoroughly enjoyable hard work too, in persuading the young red squirrels to pose for their portraits. After finding the nest



A FAMILY OF YOUNG RED SQUIRRELS

near the top of a pine, I shook the tree gently and immediately the little fellows scampered out and went flying to the topmost branch, where they swayed back and forth in the light breeze, watching me inquisitively with their big bright eyes. There was another slender pine very near, which I climbed, and upon reaching an altitude opposite the squirrels, I was about to snap them when they started down-

ward. Hastily attaching the loaded and set camera to a convenient limb, with the Universal Tripod Clamp, I dropped a spool of thread, which was attached to the shutter for just such an emergency, to the earth, and followed after as rapidly as possible. With the thread in my hand I chased the little animals up their home tree again and, by pelting them with pine cones, soon had them at the tip top and within



MR. AND MRS. SKUNK

range of the lens. I then pulled the thread and procured an unusual photograph.

The simple procedure just outlined can be adapted and modified in many ways, according to circumstances. For instance, by setting up the camera focussed on a bird nest with film ready for exposure and carefully leading the thread away to some convenient position at a distance, where you will be well screened from view, excellent pictures in natural surroundings may be secured. The proper instant to release the shutter can be better determined by studying the birds through a pair of binoculars.

In game country it is always wise to have a Kodak, no matter

how small, with you upon all occasions, as you never know when the opportunity for an unusual wild life picture may present itself. The photograph of Mr. and Mrs. Skunk hunting for bugs under a log is an example of this. It was procured by the writer and a friend while upon a cross-country hike, and the chance came most unexpectedly. Skunks are very easily photographed, as they do not fear man, or anything else on earth for that matter, being provided with a terrible weapon of defence. When approaching a skunk keep at least six feet away, and if you see him stop, turn his head toward you, and lift his bushy tail, get away from there. If your longing for a "close up" portrait overcomes

your safety first principles, you may find yourself in a very unpleasant predicament. I speak from experience.

Covering a period of several years, during which time I have obtained hundreds of unusual wild life photographs, I have used the same camera for practically all my work—a Premo 4 x 5 long focus, fitted with a Planatograph lens. While I am perfectly well aware that I could have done very much better with a more elaborate outfit, I have proved, I think, beyond the question of doubt, that good wild life pictures can be taken with a comparatively modest equipment.

I almost invariably work with the lens wide open, using as fast a shutter speed as the existing light conditions will permit.

When the sun shines on the sub-

ject I usually give an exposure of $\frac{1}{100}$ of a second and, when the subject is in the shade, an exposure of from $\frac{1}{25}$ to $\frac{1}{5}$ of a second.

Before I took up wild life photography as a pastime, I was very fond of my gun and fishing rod. To-day, by hunting with a camera, I constantly meet with new experiences and get all the thrills that accompanied my shooting and fishing trips, without the sacrifice of life, and this, it seems to me, constitutes true sportsmanship.



In our August edition, we quoted incorrect prices for Brownie Enlarging Cameras, on page 31. The proper figures are given on page 30 of this issue.



A GRACEFUL DIVE

Made with a Graflex



A PREMO PORTRAIT

Enlarged from No. 2 Folding Cartridge Premo negative



Made with No. 3A Kodak and Eastman Autographic Film Through Color Filter, by N. G. Hardy; stop, 16; 1-5 sec.; 11 A. M., December

CLOUDS AFTER A STORM

BEAUTIFUL pictures of white clouds can frequently be obtained after a rain has removed the dust and haze from the atmosphere. If the temperature drops after the storm has passed the air will usually become so transparent that the sky will appear bluer and the distant hills will seem to be much nearer than usual.

In photographing white clouds we should, whenever possible, record whatever shadows there may be on the clouds. When the cloud surfaces are undulating, or resemble hills and valleys, pronounced shadows can be seen in the depressions of those clouds that are far to the right or left of the sun.

Our illustration is reproduced from a photograph made by Mr. N. G. Hardy. A careful examination of this picture tells us that the sun was to the left and slightly in

front of the camera. When the sun is far enough in front of the camera to shine on the lens it is necessary to shade the lens by holding some object a few feet from the camera, outside the field of view of the lens, so it will cast a shadow on the lens. If the object used for shading the lens cannot be seen in the finder when it casts a shadow on the lens it is outside the field of view. If the sun shines on the lens while the exposure is being made the picture will be fogged.

Splendid pictures of clouds above the landscape can easily be made wherever the conditions we have mentioned are observed after a storm.

For making pictures of clouds in which landscape detail is to be recorded, the best results can be obtained with a color filter. With a Kodak Color Filter an exposure

of $\frac{1}{25}$ of a second with stop 8 (f.11), between the hours of 9 and 4 in summer is recommended for distant landscapes. When a Wratten K2 Filter is used this exposure should be doubled.

With cameras that have neither

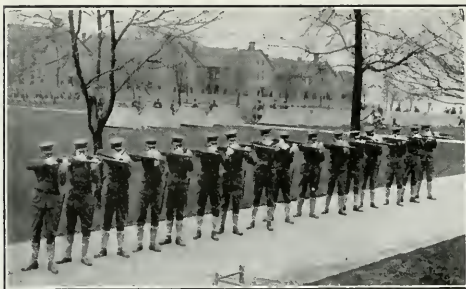
the stop nor shutter speed markings mentioned, use a Kodak Color Filter, and, with the second largest stop, give a quick "Bulb" (with camera on tripod or firm support), between the hours of 10 and 3.



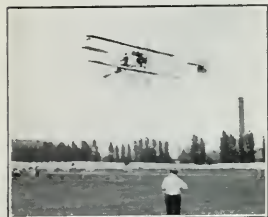
REMINISCENCE OF WINTER
Made with No. 3A Folding Pocket Kodak

THE MACHI

KODAK AND GRAFLEX
RECORDS OF THE RIFLE,
THE FIELD GUN, THE
AEROPLANE, THE
SUBMARINE AND THE
DESTROYER



Y OF WAR



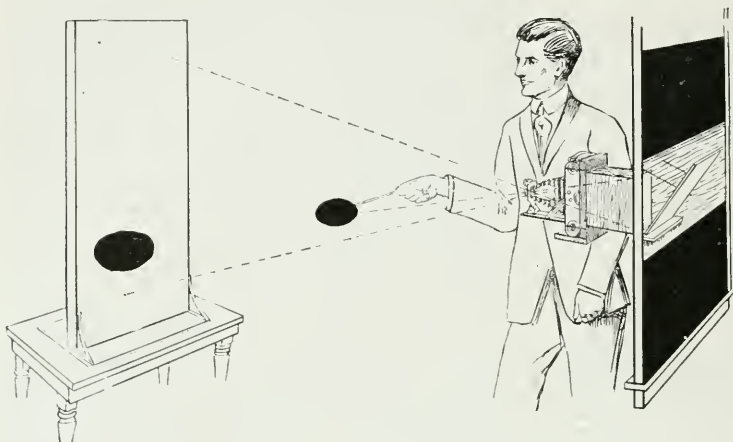


Fig. 1. Showing the method of locally controlling the Printing of an Enlargement

LOCALLY CONTROLLING THE PRINTING OF ENLARGEMENTS

WHEN we are making enlargements, by the method described in the September KODAKERY, the darkroom in which we are working constitutes the inside of the enlarging camera (even as the inside of the bellows constitutes the inside of a folding hand camera) and the easel onto which the enlarged image is projected serves as the focusing screen. The hand camera (from which the back has been removed), with which we are making the enlargement serves as an apparatus for holding the lens and the negative, and the hand camera bellows forms a light-tight cone that prevents all light, except that which passes through the negative and lens, from reaching the paper on which the enlargement is being made.

By being inside the enlarging camera during the printing of the enlargement we can locally control the printing. Since by this method pictures can be made that cannot so easily be obtained by any other photographic process known we will explain the method in detail.

Practically all negatives, excepting those that were badly under-exposed, contain much delicate detail which may be scarcely noticeable in a small contact print but which is clearly seen in an enlargement.

The absence of detail in small areas of the light or dark tones of a small picture is not displeasing, but in an enlargement these areas, being larger, are much more conspicuous and are then seldom as pleasing without as with detail.

If the negative shows detail in



Fig. 2. Made without Locally Controlling the Printing. When printed long enough to show detail in lighted side of house some detail in the shaded side is lost.

these areas we can record this detail in our enlargement, and what is of even greater importance, we can also *increase* or *decrease* the *contrast* between the various tones of the picture, as much or as little as we wish, by locally controlling

the printing of the enlargement. The method of doing this is illustrated by the outline drawing shown in Fig. 1.

The dotted lines leading from the lens to the easel suggest the size of the enlargement being made,



Fig. 3. Detail in both lighted and shaded sides of house obtained by Locally Controlling the Printing.

and the dark patch on the easel represents an area that would appear too dark, or without detail in the enlargement, if the light was allowed to act on it as long as on the other parts of the picture.

The method of locally controlling the printing is to allow the light to act on the whole picture as long as is necessary for fully printing the dark tones, and then as soon as the dark tones have been fully printed, to hold a piece of cardboard in such a position between the lens and the easel as to prevent the light from reaching and consequently over-printing the part of the picture that has been fully printed, without preventing it from reaching the parts that are not yet fully printed. The size of the cardboard must be determined by the size of the area to be shaded and by the distance the cardboard is held from the lens—the nearer it is to the lens the larger the shadow it will cast and the more diffused the edges of the shading will be in the finished picture. By holding it somewhat nearer the lens than the easel, and by keeping it constantly moving when the shading is being done, no evidence of the shading will show in the picture.

The cardboard should be attached with gummed paper strips, or with any other suitable medium, to a handle consisting of a strip of clean glass about $\frac{1}{2}$ inch wide and fully as long as one-half the width of the easel. As the light will pass through this glass the handle will have no appreciable effect on the shading of the picture. Fig. 2 is reproduced from an enlargement

made without shading. Fig. 3 shows the result of locally controlling the printing, some of the dark tones having been shaded by the method we have described.

For printing detail in light tones a sheet of cardboard that will shade the entire easel is used. A hole is cut in the cardboard through which the light passes during the shading. The area and shape of the hole can be changed by placing the fingers over part of it.

While somewhat difficult to describe, this process is exceedingly easy to work and, with a little practice, the photographer should be able to obtain the results he desires—results that cannot be excelled by any method known.



There are times when a tripod must be used in places where it won't stand straight. The Universal Tripod Head, which fits all tripods, has a ball and socket joint, which can be set so the camera will be held level or pointed at any angle desired, no matter how much the tripod tilts.



*Made with Vest Pocket Kodak
(Reduced)*

THE KODAK AND THE FOURTH DIMENSION

KODAK has solved the fourth dimension. With length, breadth and thickness seemingly taxed to capacity along come Kodak compactness and human ingenuity and—there's room for a Kodak. Travel as light as you will, with pockets at a premium and space crammed full with cubic inches of necessary paraphernalia, and yet, whether it be the Vest Pocket or its big brother, the 3A, there is a Kodak that can fourth-dimensionize itself into the outfit.

You're on the golf course. It's a warm day and you are coatless. Consequently the pocket made famous by the Vest Pocket Kodak, as well as most of your other pockets, are in the club house locker; but you'd like to take along your V. P. K. Go ahead, the pocket at the side of your golf bag qualifies as just the thing and the golf balls are wholly at home in the bottom of the bag. So the V. P. K. makes the round with you and some pretty slick pictures are the result.

The motor is tuned up and you are about to play "Over the Hills and Far Away." This is to be a real trip and the car is loaded with the requisites of motor travel, including, of course, a Kodak. There was no trouble whatever in finding room for the Kodak. Its fourth dimension qualities were never more in evidence. It needed no Sherlock Holmes to tell you that the automobile manufacturer who equipped his car with door pockets was probably a camera enthusiast. Another very simple method of



IN OUTFIT SHIRT POCKET

carrying the Kodak on a motoring trip, by the way, is to slip it in the pocket of the ever-present rain coat, slip the rain-coat over the robe rail and clip the coat with string or a strap just above the pocket. In this position the Kodak is readily accessible and at the same time the coat gives it protection from dust and knocks. Tying the coat together above the pocket may not be a necessary precaution but it is a sure preventive against the weight of the camera, or the swing of the car, pulling the coat

from the rail. "But what if we don't carry a rain-coat?" you ask. Always carry a rain-coat. It's the only way you will never need it.

You're going to rough it. It's a fishing expedition and as far as spare pockets go, in the words of the ancient sage, "There ain't no such animal." How then are you conveniently going to take along a Kodak? Enter the fourth dimension in the person of the belt-case for the Vest Pocket Kodak; you wear the belt and the Kodak, and back home the folks will have to believe your story of the ten



IN A BELT CASE



IN GOLF BAG POCKET

pounder—the pictures prove it.

Compactness is a prime characteristic of the Kodak line. From the 3A which fits the overcoat pocket, to the Vest Pocket which will slip in almost anywhere, they all exhibit this characteristic. You have only to glance at the 2C Kodak, for example, to realize to what lengths Kodak compactness has been carried. Here is a camera making a picture $2\frac{3}{4}$ by $4\frac{1}{4}$ inches, and yet the coat pocket takes it, with space to spare. The Nos. 1 and 1A Juniors are also excellent examples of the Kodak idea of the greatest amount of photographic fitness in the smallest possible amount of space.

Although not a necessity, the vacationist or traveler would do well to equip his Kodak with a carrying case. In the first place there is a gain in convenience and, more important, the case provides valuable protection against dust and the general rough and tumble of transportation. And often the case makes a valuable contribution to the fourth-dimension qualities of the Kodak because, thus protected,

it is possible to pack it in nooks that otherwise would be unsafe.

Wherever you go, however you go, pictures a-plenty lie in waiting—pictures that it will be fun to make at the time—pictures with a lasting pleasure that gain in interest with the years.

Not only is there always room for a Kodak as measured in terms of inches, there is room for it, always, in terms of pleasure.



TENTATIVE DEVELOPMENT

BEFORE it was discovered that several negatives could be correctly developed together in a tank photographers developed their negatives, usually singly, in a tray. A common practice was to judge, by the appearance of the image in the early stages of development, whether the exposure the

film or plate had received was correct or incorrect, and if, in the opinion of the photographer, the exposure was not correct changes were made in the developer as soon as the exposure error was discovered. These changes were made in the belief that the developer could counteract the effects of



LAKE LOUISE, IN THE ROCKIES

Made with No. 3A Folding Pocket Kodak, by A. J. Everest

under-exposure or over-exposure. This was a tentative or experimental method of development.

Viewed in the light of modern knowledge tentative development is a profitless procedure, not only because it is wasteful of time and chemicals, but chiefly because the theory on which the method is based has been proven erroneous.

A negative is made by exposing a film or plate in a camera and then developing it. In discussing tentative development we have, therefore, but two things to consider—exposure and development.

The record the light makes on a film or plate is determined solely by the exposure. How much or how little of the light record the finished negative contains is de-

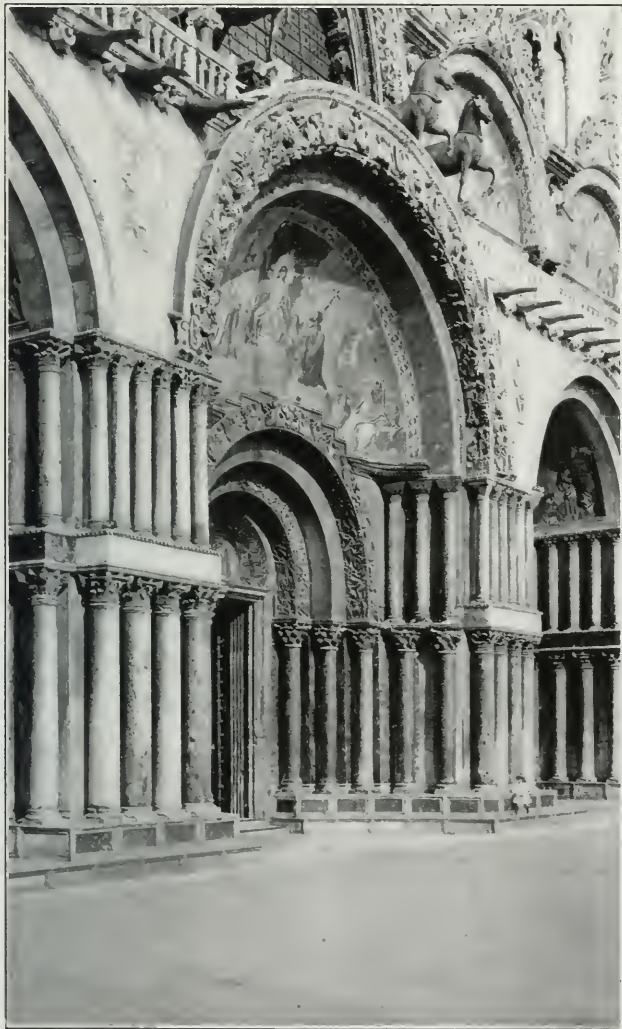
termined solely by development. The developer makes the latent image visible. Where the light has not acted there can be no image. Trying to coax out an image which is not latent in the film is a hopeless procedure, and the theory that by diluting the developer, or by adding carbonate to the developer, in tentative development, more detail can be developed than by any other method, is all wrong.

The companion theory, that bromide of potash will increase contrast in an over-exposed negative if it is added to the developer after the negative has been developed far enough to show that it really was over-exposed is likewise erroneous. The image in an over-exposed negative flashes up so quickly in tentative development that the shadow detail usually becomes visible before one can discover that the negative was over-exposed. If bromide is added to the developer after this shadow detail has become visible it will slow the development but will have very little, if any, influence on the contrast of the negative. In order to increase the contrast the bromide must be added to the developer *before* the shadow detail is visible.

Since tentative development neither enables us to add detail to under-exposed negatives or contrast to over-exposed negatives it offers no practical advantages whatever. By far the best method of developing negatives is to develop them for a given time, with a developer of a given strength, at a given temperature. This is the method employed in tank devel-



A FRIENDLY BREEZE
Made with Vest Pocket Kodak



PORTAL OF ST. MARC'S, VENICE
Made with No. 3A Folding Pocket Kodak

opment. It is equally suitable for tray development, though in tray development it is advisable to use only $\frac{1}{3}$ as much water in making up the developer and to develop for only $\frac{1}{3}$ the length of time recommended for tank development.

Strange as it may seem, when correctly exposed, under-exposed and over-exposed films are all de-

veloped together, according to instructions, for the same length of time in an Eastman Film Tank, they will all make good prints, unless the incorrectly exposed ones were hopelessly under-exposed or over-exposed. From hopelessly bad exposures it is manifestly impossible to obtain good negatives by any known method of development.



REFER TO THE INDEX

THE index, published annually in the October KODAKERY, tells the photographer who keeps his KODAKERY files intact, where to quickly find the solution of many photographic problems.



TEAM WORK

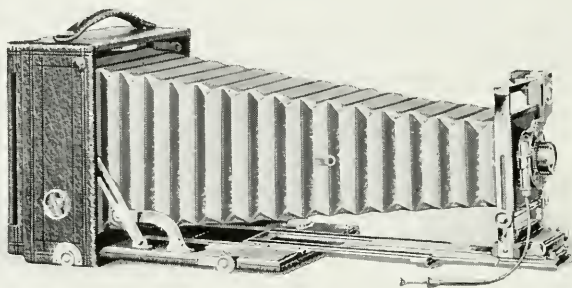
Made with No. 3A Folding Pocket Kodak

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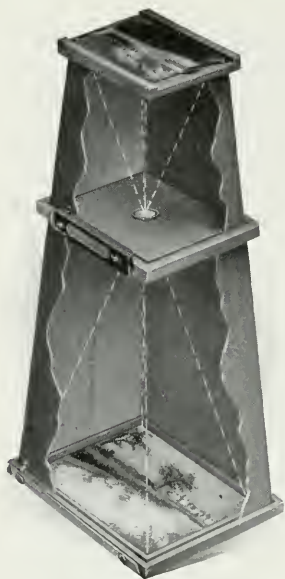
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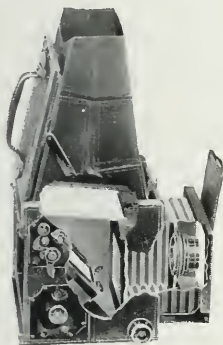
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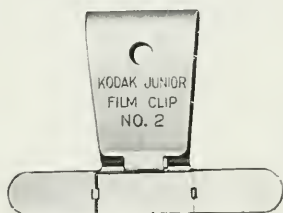
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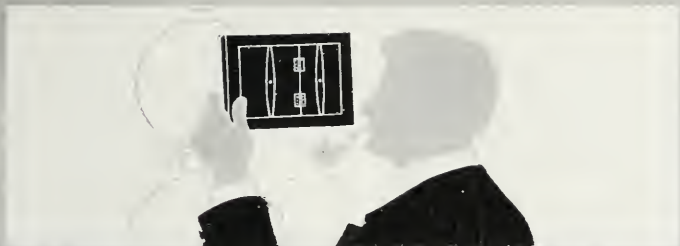
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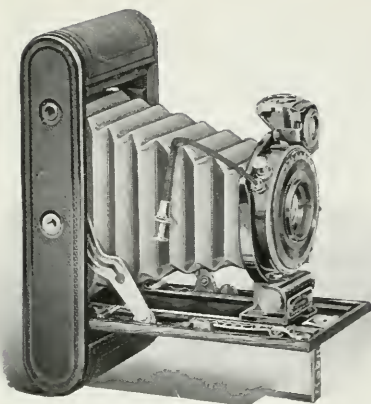
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